FEDERAL ACQUISITION PROCEDURES

By

Christopher M. Garver

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Signature of
Author:_____
School of Engineering
May 1994

Certified By:_____
Henry S. Marcus
Thesis Advisor
NAVSEA Professor of Ship Acquisition

Accepted By:_____
A. Douglas Carmichael
Chairman, Departmental Committee on Graduate Students

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Abstract

In an effort to increase efficiency and provide support to the American shipbuilding industry, many suggestions have been made for changes to the federal acquisition practices. Unfortunately, the works describing these suggestions assume that everyone is already aware of the acquisition structure and process. This research is designed to both form a text that people can use to get up to speed on the acquisition process, and indicate where in the acquisition structure the suggested changes might take place.

Thus, this report examines the evolution of acquisition strategy and organization, highlights some of the shortcomings of the present process, describes the key players and processes, contrasts U.S. and foreign practices, makes more suggestions for modifications, and illustrates the modern trends.

Thesis Supervisor: Professor Henry S. Marcus
Professor of Marine Systems
NAVSEA Professor of Ship Acquisition

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Finally, I appreciate the time and aid given by Arthur W. Divens, Jr., T-AGS 45 Project Manager.

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Glossary

ABS	American Bureau of Shipping
ACAT	Acquisition Category
ACO	Administration Contracting Officer
AFLC	Air Force Logistics Command
AFSC	Air Force Systems Command
AMC	Air Materiel Command
AP	Acquisition Plan
APM	Assistant Project Manager
ARDC	Air Research and Development Command
ASD	Assistant Secretary of Defense
ASN(S&L)	Assistant Secretary of the Navy, Shipbuilding and Logistics
ASN(RD&A) Acquisition	Assistant Secretary of the Navy, Research, Development, &
ATF	Advanced Tactical Fighter
AT/UT	Acceptance or Underway Trials
BAFO	Best and Final Offer
BDT	Builder's Dock Trials
BST	Builder's Sea Trials
BT	Builder Trials
CARP	Contract Award Review Panel
CBD	Commerce Business Daily
CBO	Congressional Budget Office
CHENG	Chief Engineer of the Navy
CM	Contracting Manual
CNO	Chief of Naval Operations
COEA	Cost and Operational Effectiveness Analysis
COMNAVSEA	Commander, Naval Sea Systems Command
COMSC	Commander, Military Sealift Command

COR	Circular of Requirments
CPAF	Cost Plus Award Fee Contract
CPIF	Cost Plus Incentive Fee Contract
C/SC	Cost Sharing Contract
C/SCSC	Cost/Schedule Control System Criteria
CSCT	Combat Systems Certification Trials
DCAA	Defense Contract Auditing Agency
DCP	Decision Coordinating Paper
DFARS	Department of Defense FAR Suppement
DON	Department of the Navy
DPS	Decision Package Sets
DSARC	Defense Systems Acquisition Review Council
FAR	Federal Acquisition Regulations
FBM	Fleet Ballistic Missile
FCT	Final Contract Trials
FFP	Firm Fixed Price Contract
FOA	Fitting-Out Availability
FPIF	Fixed Price Incentive Fee Contract
FYDP	Five Year Defense Plan
GAO	General Accounting Office
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GFM	Govementment Furnished Material
GMI	Guarantee Material Inspection
HAC	House Appropriationns Committee
HASC	House Armed Services Committee
HCA	Head of a Contracting Agency
IFB	Invitation for Bids
INSURV	Inspection and Survey
IQC	Invitation to Quote Costs

ITP	Integrated Test Package
IUSS	Integrated Undersea Surveillance Systems
J&A	Justification and Approval
JCS	Joint Chiefs of Staff
JOPS	Joint Operational Plannng System
JPAM	Joint Program Assessment Memorandum
JSPS	Joint Strategic Planning System
LOE	Light-off Examination
MILCON	Military Construction
MITI	Ministry of International Trade and Industry
MOU	Memorandum of Understanding
MSC	Military Sealift Command
NAPS	Navy Acquisition Procedures Supplement
NAVAIR	Naval Air Systems Command
NAVCOMPT	Comptroller of the Navy
NAVFAC	Naval Facilities Engineering Command
NAVMED	Naval Medical Command
NAVSEA	Naval Sea Systems Command
NAVSEC	Naval Ship Engineering Center
NAVSUP	Naval Supply Systems Command
NDCP	Navy Decision Coordinating Paper
OCEANAV	Occeanographer of the Navy
OIC	Officer in Charge
OMB	Office of Managment and Budget
O&MN	Operations and Maintenance, Navy
OPN	Other Prcurement, Navy
OPNAV	Office of the Chief of Naval Operation
OR	Operational Requirement
OSD	Office of the Secretary of Defense
PARM	Participating Manager

PCO	Procurring Contracting Officer
PCO	Prospective Commanding Officer
PDM	Program Decision Memorandum
PDR	Preliminary Design Report
PEB	Propulsion Examing Board
PEM	Program Endorsemetn Memorandum
POM	Program Objectives Memorandum
PPBS	Planning, Programming, and Budgeting System
PR	Procurement Request
PSA	Post Shadedwon Availability
QA	Quality Assurance
RDT&EN	Research, Development, Test and Evaluation, Navy
RFP	Request for Proposal
RFS	Readiness for Sea
ROV	Remotely Operated Vehicle
SAC	Senater Appropriations Committee
SASC	Senater Armed Services Committe
SCIB	Ship Characteristics and Improvement Board
SCN	Ship Construction Navy
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SHAPM	Ship Acquisition Project Manager
SLEP	Service Life Extension Program
SLM	Ship Logistics Manager
SOM	SUPSHIP Operations Manual
SPAWAR	Space & Naval Warfare Systems Command
SPD	Ship Project Directives
SQT	Ship Qualification Trial
SSA	Source Selection Authority
SSEB	Source Selection Evaluation Board

SSP	Source Selection Plan
SSP	Strategicc Systems Program
SUPSHIP	Supervisor of Shipbuilding
SYSCOM	Sytems Command
TERP	Technical Evaluation Review Panel
TOR	Tentative Operational Requirement
TLR	Top-Level Requirements
TQL	Total Quality Leadership
TQM	Total Quality Management
TSTP/SP	Total Ship Test Program for Ship Production
WLD	Work Limiting Date
WSAT	Weapn System Accuracy Trials
WSPO	Weapon System Project Office

1 Defense Acquisition

The Department of Defense acquisition directorate defines an **acquisition program** as:

> "a directed, funded effort that is designed to provide a new or improved capability in response to a validated need." [1]

Let us begin by studying this definition. First, the term "program" is used because although the business of acquisition is planned in time phases, it is driven by requirements and measured by specific events.

The use of such terms as "directed" and "funded" is meant to imply the importance and cost. So important, in fact, that specific authority is required from Congress and the Executive Branch for the development of any major weapon system.

Before we go any further it should be noted that although people generally think of entirely new systems such as the B-2 Bomber or Advanced Tactical Fighter (ATF) when they are speaking of acquisition, new capability does not always imply entirely new systems. The reason the B-52 Bomber, operational since the 1950s, is still an important part of the nation's defense is the hundreds of modifications designed to provide it with new capabilities.

One of the most important concepts of acquisition, "in response to a validated need", probably caught your eye. Well, I should hope that it caught your eye. This phrase implies that new capabilities are to be developed only to supply operational needs. Acquisition officers are to respond to the need of their "customers" rather simply playing in the business of selling technology. The acquisition process is designed to be driven by legitimate requirements. Unfortunately, some would contend that this does not always happen.

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[1] Air Force Acquisition Fundamentals Study and Guidebook, 31 March 1992, page I-2-2

2 Shortcomings of the Acquisition Procedure

The Unites States' military equipment has been kept at the technological forefront. However, this technology has a high price tag as seen by the annual increase of around 5-7 percent in the unit cost of each new generation of equipment (even after adjustment for inflation and for the higher unit prices associated with the reduced quantities typically purchased today).[2] At present, an aircraft carrier costs about $3.4 billion[3], a B-1B bomber well over $20 million[4], an F-15 fighter plane around $38 million[5], and an M1 tank around $2.4 million.[6] Therefore it comes as no surprise that, as costs rise, the U.S. buys fewer and fewer weapon systems.

An illustration of this trend of declining purchases can be seen in aircraft procurement. In 1955 the Department of Defense spent approximately $7 billion (adjusted to 1982 dollars) to procure about 1,400 military aircraft. However, by 1982 it was spending $14 billion a year for only about 200 aircraft.[7] As pointed out by Norman Augustine[8], a continuation of this trend would result in the annual production of only one fighter plane per year in the year 2054. This is clearly alarming because even if the individual weapons have superior capabilities, there is an absolute minimum number of weapon systems that are required or critical for the successful completion of any military mission.

Why has the unit cost been increasing so dramatically? Historically it appears that the armed forces, realizing the difficulty of buying enough weapons with the funds available, have produced optimistic estimates of the costs of new weapon systems. This trend is very evident in the initial requests for system development. The resulting

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[2] Defense Systems Acquisition Review Council Working Group, Final Report, 19 December 1972

[3] Washington Post, 26 October 1986

[4] J. Gansler, *Affording Defense*, MIT Press, 1991, page 7

[5] Congressional Budget Office, Analysis of Defense Budget Justification Data, 1986

[6] Ibid.

[7] Rep. Newt Gingrich, presentation at West Point, 1983

[8] Norman Augustine, *Augustine's Laws*, American Institute of Aeronautics and Astronautics, 1982

difference between the initial estimates of a program and the program's final price tag is then coupled with the rising costs of weapons systems brought on by the demand for increasing performance.

The high costs associated with weapon development and production forces the U.S. to stretch out the acquisition process dramatically. The increasing complexity of modern weapon systems contributes to this stretching, but Jacques S. Gansler offers two other important causes. The first cause is the increasingly burdensome and indecisive managerial and budgeting process (in both the executive and the legislative branch) and the second is the combination of program cost growths and program budget reductions. Overall, the length of time between exploratory research and initial field deployment has been stretched from 5-7 years to 12-15 years.[9]

Because the development costs are so high, only a few production units can be purchased each year. This reduction in purchases pushes the fielding of any significant numbers off even further, forming a vicious chain reaction. The design produces equipment with a higher price tag. The higher costs then limit the quantity that can be afforded, and the lower production reduces production efficiency. This production inefficiency drives up the costs and further limits the number affordable. It is therefore intuitively clear that the design must be performed with production in mind to offset this trend.

As the production rates decline, one would expect to see and has seen the industrial base "drying up". In fact, during the dramatic shrinkage in defense procurements following the Vietnam conflict, the major weapon system contractors stayed in business only by slowing their production to very low rates. Actually, many of the parts suppliers and subcontractors were allowed to go out of business and were replaced during the 1980s by foreign companies.[10] Late in 1980 (before many of the foreign replacements) problems in the U.S. defense industrial base were indicated by a series of reports.[11] These

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[9] D. Lockwood, "Cost Overruns in Major Weapon Systems: Current Dimensions of Long-Standing Problems," Congressional Research Service Report 83-194F, Library of Congress, 15 October 1983

[10] J. Gansler, "U.S. Dependence on Foreign Military Parts: Should We Be Concerned?", *Issues in Science and Technology* 2, no. 4, 1986

[11] House Armed Services Committee, Industrial Base Panel, "The Ailing Defense Industrial Base: Unready for Crisis," *Congressional Record*, 31 December 1980; Defense Science Board Task Force,

problems included both inefficiencies during normal peace time operations and critical bottlenecks that were indiscernible in day to day operations. Although these bottlenecks may handle the normal loads of critical parts and production equipment, they will prevent the rapid response so desperately needed in a time of emergency. An example in aircraft production was given. It was reported that it would take over three years for this aircraft production line to increase its production by any significant amount.

Why has the industrial base been allowed to decline so far? To answer this, let us look at the national-security strategy and the evolution of procurement policies.

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report on industrial responsiveness, 21 November 1980; Air Force systems Command statement on defense industrial base issues, 13 November 1980

3 Evolution of Acquisition Strategy

Following World War II, the U.S. shifted its defense posture to one that relied heavily on nuclear deterrence. The ensuing Cold War instigated a technology race. The research and development portion of the defense budget climbed from $500 million in 1945 to more than $7 billion by 1963 in response to the Soviet threat.[12] In 1957, when the Soviets launched the Sputnik satellite, U.S. population was terror stricken that the Soviets might achieve a nuclear "first-strike" capability before the U.S. could develop its own missile force. This fear fueled public support for increased defense spending, but also brought increased scrutiny to the weapons acquisition business. Despite this increased scrutiny, most of the debate in the late 50s and early 60s centered on which weapons to pursue rather than how to pursue them.

The technological race wasn't the only race at this time, another race being between contractors. Most of the contracts awarded were done so without competition. In the aerospace arena, many of the contracts were simply awarded to the firm that had come up with the latest technological advance. Robert Charles, Assistant Secretary of the Air Force, described the fallout of the technology driven acquisition process:

> "We were engaged in what former Air Force Secretary Eugene Zuckert dubbed "iceberg" procurement, with the partially visible out-of-water portion representing development and the larger invisible underwater portion representing production. Before the program really got underway, we became wedded for the duration to a particular contractor without meaningful performance and price commitments, and without competition."[13]

Obviously, this process for awarding major contracts had some problems and could have been more effective in transforming technology and taxpayers' dollars into combat power.

In the 1960s the Soviet Union began to achieve nuclear parity, forcing the U.S. to shift away from nuclear weapons toward the threat of conventional weapons to prevent conflicts. Thus, the U.S. program of "flexible response" was born. In this program, conventional forces would be used against conventional forces while nuclear weapons

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[12] Air Force Acquisition Fundamentals Study and Guidebook, 31 March 1992, page I-2-12

[13] Ibid., page I-2-13

would serve as both a deterrent to nuclear attacks and a "first strike" if conventional forces failed.

Obviously, if nuclear weapons are to be avoided in this new flexible response, the U.S. has to rely heavily on its conventional forces. This places a greater emphasis on an American industrial responsiveness capable of augmenting the still relatively small capability of the U.S. for tactical warfare. **However, improving the industrial responsiveness requires money, which compounds the squeeze on available acquisition funds. Therefore, for the last three decades, successive U.S. administrations have been reluctant to take significant steps in this area. This has resulted in a national-security stance that is not backed by a corresponding military or industrial capability.**[14]

The 1960s also brought more "mega-programs" and with them came ideas on how to contain costs. In 1964, the concept of "total-package procurement" was introduced. Under this package, competing contractors were required to submit binding price bids for the entire weapon-system program before an award was made. This binding price included the production costs as well as the development costs. This was an attempt to allow the government a choice between competing products on the basis, not of estimates, but of meaningful commitments concerning performance, delivery schedule, and price of the operational equipment. Although the policy failed to control costs, it did foster an improved system for generating requirements based on mission requirements.

Almost every total-package award ended up with huge and widely publicized cost overruns. In order to avoid bankruptcy, several of the contractors who ended up with total package contracts required large government bailouts or guaranteed loans.[15] Subsequently, Congress passed legislation prohibiting this approach.

In the early 1980s, the problems of the U.S. defense industry, reflected in the broad problems of the entire U.S. industry, were "discovered". The high cost and low quality of defense systems paralleled the American automobile, electronics, and steel industries. The U.S. industrial base was going for short-term objectives rather than the

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[14] J. Gansler, *Affording Defense*, MIT Press, 1991, page 10

[15] Air Force Acquisition Fundamentals Study and Guidebook, 31 March 1992, page I-2-13

long-term pursuit of higher quality and lower costs. The effect from this was worse in the defense industry than in most other sectors. The principal reason or difference is that the defense industry had a customer who was forced to buy what it produced, while other U.S. industries were competing against foreign competitors. However, this didn't help the U.S. commercial sector much because it lost out to this foreign competition at a rapidly increasing rate.

4 Evolution of Acquisition Organizations

To understand the present status and future direction of the acquisition process, we might look at the evolution of the acquisition organizations as well.

Until 1951 the total material management responsibility of the Air Force rested in one command, the Air Materiel Command (AMC). The Air Research and Development Command (ARDC) was formed in 1951 to carry out weapon system research and development. This left the Air Materiel Command the responsibility for acquisition and supply support, and the AMC proceeded to handle about 90 percent of the Air Force's procurements. In handling these procurements, it decentralized virtually all procurement functions with the exception of complete aircraft, missiles, engines, and other major equipment systems.[16]

It rapidly became apparent that the management of weapons could not be compartmentalized in terms of research and development on one hand, and acquisition on the other. With weapon complexity advancing, trying to coordinate the decisions of separate development and procurement organizations together in the hope of joining components and subassemblies in a compatible and effective weapon system became increasingly difficult. Additional problems arose when attempts were made to reduce the time from design to delivery by overlapping certain phases of development and production. This was concept was known as "concurrency" and accented the need for a blending of the military and industry effort on subsystems and components.

In an effort to cope with these problems, the Weapon System Project Office (WSPO) technique was applied within the Air Force. A project office to exercise management control was established for each major weapon under development. Jointly staffed with ARDC and AMC personnel, the office was charged with ensuring the proper phasing and integration efforts on designated weapon system projects. The ARDC was the "executive agent" for management control in the development phase, and the AMC took over this role in the production phase. The AMC maintained this role when the weapons system was deployed to the operational inventory.

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[16] Ibid., page I-2-14

This effort proved ineffective because the shifting of responsibility on the basis of predominance of development or acquisition was never satisfactory to either of the two commands nor to the contractors with whom they dealt. Additionally, the WSPOs had no inherent directive authority and wasted much time in getting decisions.[17]

In April 1961, the Air Force created two new commands in a major realignment of its materiel management structure. These two new primary procurement agencies were the Air Force Systems Command (AFSC) and the Air Force Logistics Command (AFLC).

In 1969, President Nixon appointed Melvin Laird as Secretary of Defense. During Mr. Laird's four year tenure, he improved relations with Congress and promoted cooperation between the services by developing a close working relationship with the Joint Chiefs of Staff. He defined the role and relationship to the services of the Secretary of Defense with its associated staff for future Secretaries. Laird appointed as his deputy a founder of the Hewlett-Packard Company and a leading defense industrialist, David Packard. Since then, Mr. Packard has probably had a greater impact on shaping defense acquisition than any other single individual.

Packard rejected paper analyses and Total Package Procurement when he reviewed the Air Force's light-weight fighter program. He adopted a traditional procurement practice of the original Army Air Corps instead. Contracts were awarded based on head to head competition of prototypes in realistic trials. Contractors developed their models based on general performance requirements at a set price. This form of procurement awarded contracts based on actual performance rather than "brochuremanship".

This fly-before-buy approach was also intended to inspire realistic cost estimates from contractors, but Packard was aware that high technology manufacturers have a difficult time estimating how much it will cost to build a product that has not yet been designed. This led to the "design-to-cost" approach in which the design was developed for a given manufacturing cost.

So, was this approach successful? The light-weight fighter program was intended as a technology demonstrator program. However, the contractors did not use the fighter

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[17] Ibid., page I-2-14

prototypes to test emerging technologies that might prove useful on the eventual design. Because they did not wish to risk losing the contract by taking a chance on an unproven technology, both General Dynamics and Northrup, the two contractors selected for the final competition, built flying fuel tanks with guns, missiles and bombs.

The Air Force selected the General Dynamics F-16 based on both cost and performance. The F-16 acquisition program became one of the most successful programs in history thanks in part to support from a NATO consortium and other foreign countries. This success, and others such as the A-10, validated the theory behind Packard's fly-before-buy program. Now it has become the accepted acquisition approach when purchasing large numbers of complex weapons systems. Unfortunately, ships are purchased in such small quantities that an approach such as this does not provide the same benefits. However, an approach such as this was done successfully with the purchase of the LCACs.

The acquisition process of the 1970s and 1980s showed many improvements over past strategies, but it was not devoid of problems. In 1985, President Reagan appointed David Packard to head a commission of the most qualified individuals in the U.S. to study the issues surrounding defense management and organization. The findings of this commission have shaped the many changes that one is to see in the years to come. Three years after these findings, Secretary of Defense Dick Cheney's Defense Management Review only served to reinforce the findings.[18]

Much of the Packard Commission's philosophy is now embodied in DoD Directive 5000.1 and DoD Instruction 5000.2.

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[18] Ibid., page I-2-16

5 The Acquisition Players

5.1 Congress

Congress provides oversight because acquisition programs represent large investments by the American public. The primary means of this congressional control consists of providing funds through the authorization and appropriation statutes and passing legislation governing the expenditure of these funds. Congress gets its information to support key decisions and drive new legislation through its investigative arm, the General Accounting Office (GAO). Congress has actually imposed a number of significant restrictions that influence the amount of authority held by the executive branch, and influences the specific processes used to procure new weapons systems.

Congressional Players

- House & Senate
- General Accounting Office
- Budget Committee
- Armed Services Committee
- Congressional Budget Office

Permanent staff members support the committees formed from Congress' 435 member House of Representatives and 100 member Senate. The three committees with the most direct influence over acquisition programs are the Budget Committee, Armed Services Committee, and Appropriations Committee. The Budget Committee sets the revenue targets and outlay ceilings, the Armed Services Committee authorizes the programs, and the Appropriations Committee determines the program funding.

Congressional Committees

- Budget Committee
  -set revenue targets & outlay ceilings
- Armed Services Committee
  -program authorization
- Appropriations Committee
  -determine program funding

The permanent staff members of these committees advise members of Congress by gathering information on behalf of the committee, preparing committee reports, and drafting legislation. Individual members of Congress also have personal staff that run their offices, interact with their constituency, and research issues of concern. Often it is the staff members who handle Congressional inquiries.

Although government manuals claim that these staffers are usually experts in weapons systems and the acquisition process, Gansler offers a different perspective.

Gansler admits that of the 20,000 congressional staff people, some are highly experienced and often many of them have more experience than their executive branch counterparts. However, the vast majority are young and inexperienced.

> "For example, about 40 percent of the legislative assistants (the 'worker bees' of most House offices) have held their positions for less than a year, and two out of three have less than two years' experience in their posts."[19]

The investigative arm mentioned earlier, i.e., the General Accounting Office, is a staff agency that reports to Congress. The GAO performs audits and investigations, and issues its reports to the committees. It is the GAO who often reviews the data submitted in support of budget requests and examines the alternatives.

What of the Congressional Budget Office (CBO)? It is the CBO's responsibility to prepare economic forecasts and policy analysis on the effects of proposed federal budget plans.

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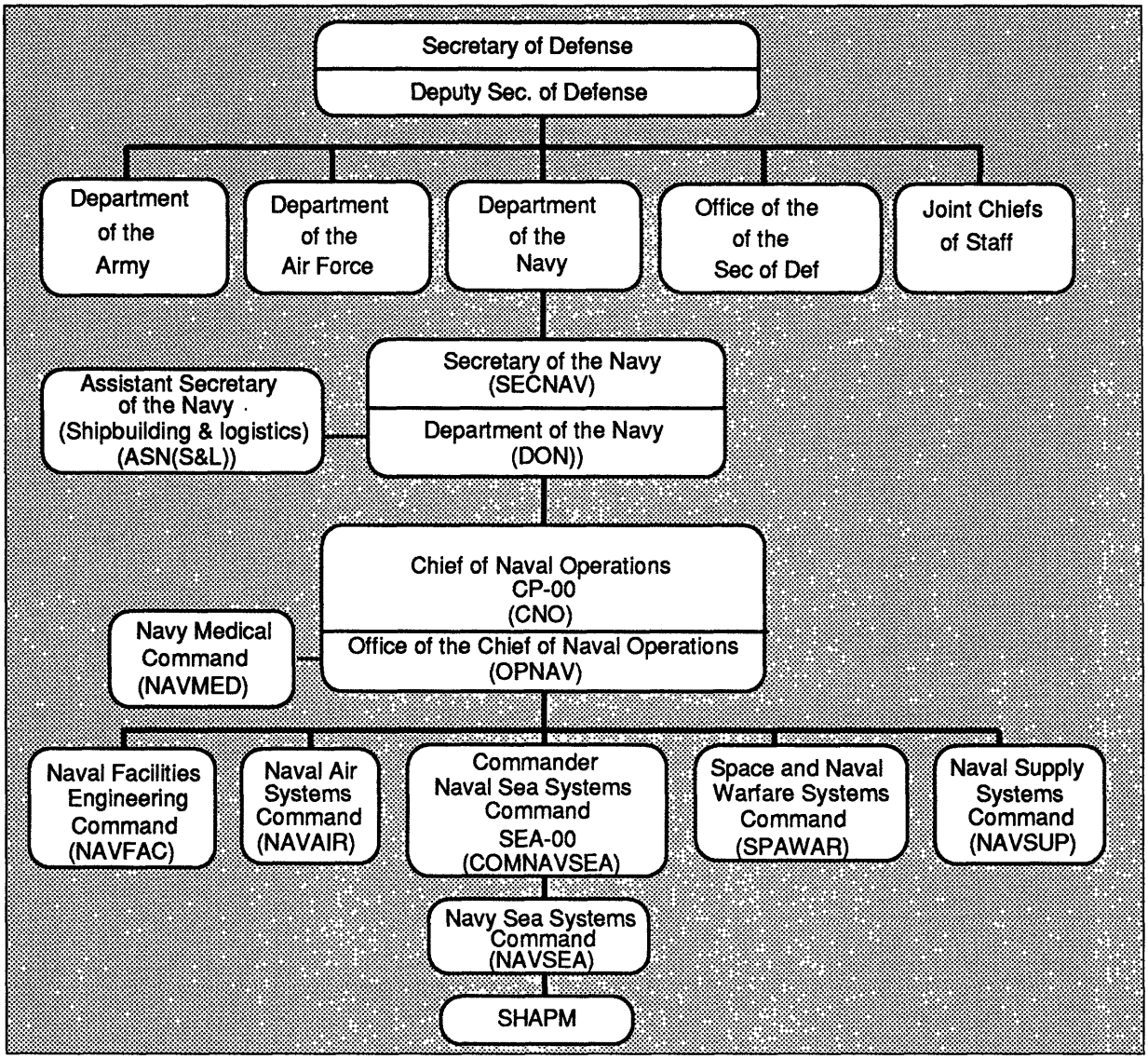
[19] J. Gansler, "Affording Defense," page 110

5.2 Executive Branch

The following organizational structure of the executive branch and its process are being changed even as I write. The information that will be given here is the process of three years ago, because the new organizational structure is still being decided and there are no updated releases. Although the organization has changed from what will be shown, this process will still be useful because most people have changed titles without changing offices or positions. Furthermore, I will attempt to describe the most recent organizational and process structure later in this paper and it will build upon this basic foundation.

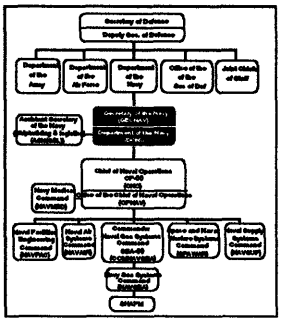
Therefore, with a three year disclaimer, let us examine the governmental acquisition structure and process.

The largest executive agency is the Department of Defense. The Department of Defense is itself composed of the following organizations: Department of the Secretary of Defense, Office of the Secretary of Defense, Department of the Army, Department of the Air Force, Department of the Navy, Joint Chiefs of Staff, Defense Agencies, and Unified and Specified Commands.



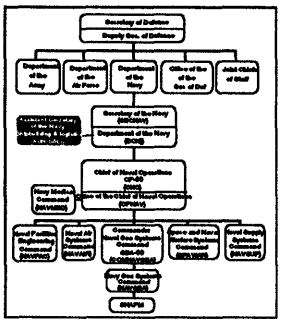
Within the Navy's ship acquisition there are a number of organizations that take part. These include the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Material. The shipbuilding acquisition executive is the Assistant Secretary of the Navy for Manpower, Reserve Affairs, and Logistics. The major responsibility for

ship acquisition rests upon the Commander, Naval Sea Systems Command (COMNAVSEA). Although the Nuclear Propulsion Directorate (SEA-08) and other NAVSEA codes participate during the acquisition process, the ship acquisition project managers (SHAPMs), the Contracts Directorate (SEA-02), and the Naval Ship Engineering Center (NAVSEC) are assigned most of the responsibility.



5.3 Secretary of the Navy (SECNAV)

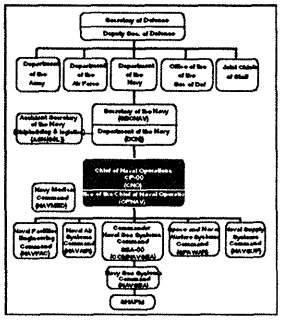
The Secretary of the Navy (SECNAV) is responsible to the Secretary of Defense for the policies and control of the Department of the Navy, This responsibility includes the Navy's organization, administration, operation, and efficiency.



5.4 Assistant Secretary of the Navy, Shipbuilding and Logistics

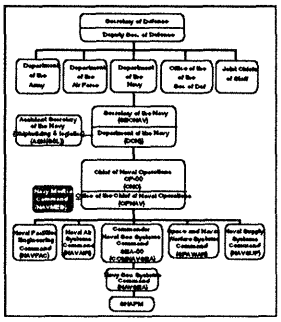
The Secretary of the Navy's principal advisor in matters relating to Shipbuilding and Logistics is the Assistant Secretary of the Navy, Shipbuilding and Logistics (ASN(S&L)). The ASN(S&L) is authorized and directed that in all matters pertaining to his area of responsibility he is to act for the Secretary throughout the Department of the Navy. This includes the review and evaluation of appropriate actions regarding shipbuilding program development and execution. His responsibilities also encompass the formulation of recommendations on policies, orders, or directives under his cognizance for SECNAV promulgation. Additionally, the ASN(S&L) is designated the acquisition executive for all shipbuilding to include design and weapons systems integration. It is the ASN(S&L)'s responsibility to ensure the accomplishment of all phases in the acquisition of naval ships in the Five Year Shipbuilding Program as well as business strategy, contracting and acquisition policy and logistics support of all Department of the Navy (DON) acquisition programs. The ASN(S&L) is to act as the

liaison between the Navy and other Assistant Secretaries in matters of mutual concern such as general oversight, policy and procedure formulation and coordination regarding environmental matters. There are Assistant Secretaries of the Navy for other areas of responsibility, but they are all responsible to the SECNAV.



5.5 Chief of Naval Operations (CNO)

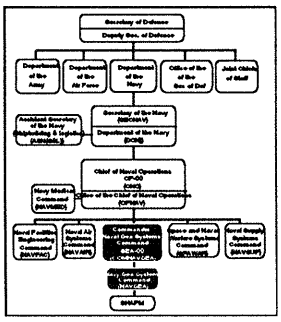
The Chief of Naval Operations (CNO) commands the operating forces of several fleets, seagoing forces, and other forces and related shore activities and is responsible to the Secretary of the Navy (SECNAV) for their readiness, use, and logistics support in both peace and war. Furthermore, the CNO conducts mission-related studies and analyses to identify the operational needs, outlines operational requirements, and decides the acceptability of proposed solutions to various needs. He also prepares tasking documents and decision papers to support program and budget decisions for major acquisition programs. It is the CNO who initiates and monitors the programs below the SECNAV level and designates decision authorities for them. The CNO also monitors the programs decided at the SECNAV level and above. He is responsible for ensuring manpower and training requirements established in the acquisition process, and supporting the implementation of these requirements. Like the ASN(S&L), the CNO is responsible to the SECNAV.



5.6 Naval Medical Command (NAVMED)

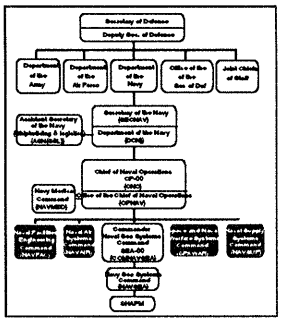
The Naval Medical Command (NAVMED) directs, monitors and coordinates the assigned Medical Department responsibilities concerned with the use and protection of Naval personnel. After determining the requirements and qualifications, he recommends the procurement, training, assignment, and distribution of research and development personnel. In the planning and conduct of RDT&E aspects of weapons systems, life support systems and personnel protection, the NAVMED provide professional medical and dental guidance and

assistance to the Navy and Marine Corps. To support the various programs, the NAVMED assigns a liaison officer to NAVSEA.



5.7 Naval Sea Systems Command (NAVSEA)

The Naval Sea Systems Command (NAVSEA) is one of five Naval Systems Commands that support the CNO. Each Systems Command provides material support in a specific area to meet the needs of the Department of the Navy. NAVSEA's main area of responsibility can be summarized as the design, development, testing, acquisition and maintenance of ships, submersibles, boats and craft for the Navy. The Commander, Naval Sea Systems Command (COMNAVSEA), is responsible to the CNO.



5.8 Other System Commands

Other System Command organizational components such as NAVAIR, SPAWAR, NAVSUP, and NAVFAC participate in the accomplishment of a project as Participating Managers. Each Systems Command provides the material support needs of the Department of Navy that are within the assigned material support responsibility of the Command.

5.8.1 NAVAIR: Naval Air Systems

- Aircraft systems and components
- Air launched weapons systems and components
- Other airborne and air launched systems & components
- Air capable ship requirements
- Helo platforms
- Vertical replenishment certification and design requirements

5.8.1 SPAWAR: Space & Naval Warfare Systems Command

- Command, control, & communications
- Undersea and space surveillance
- Navigation aids

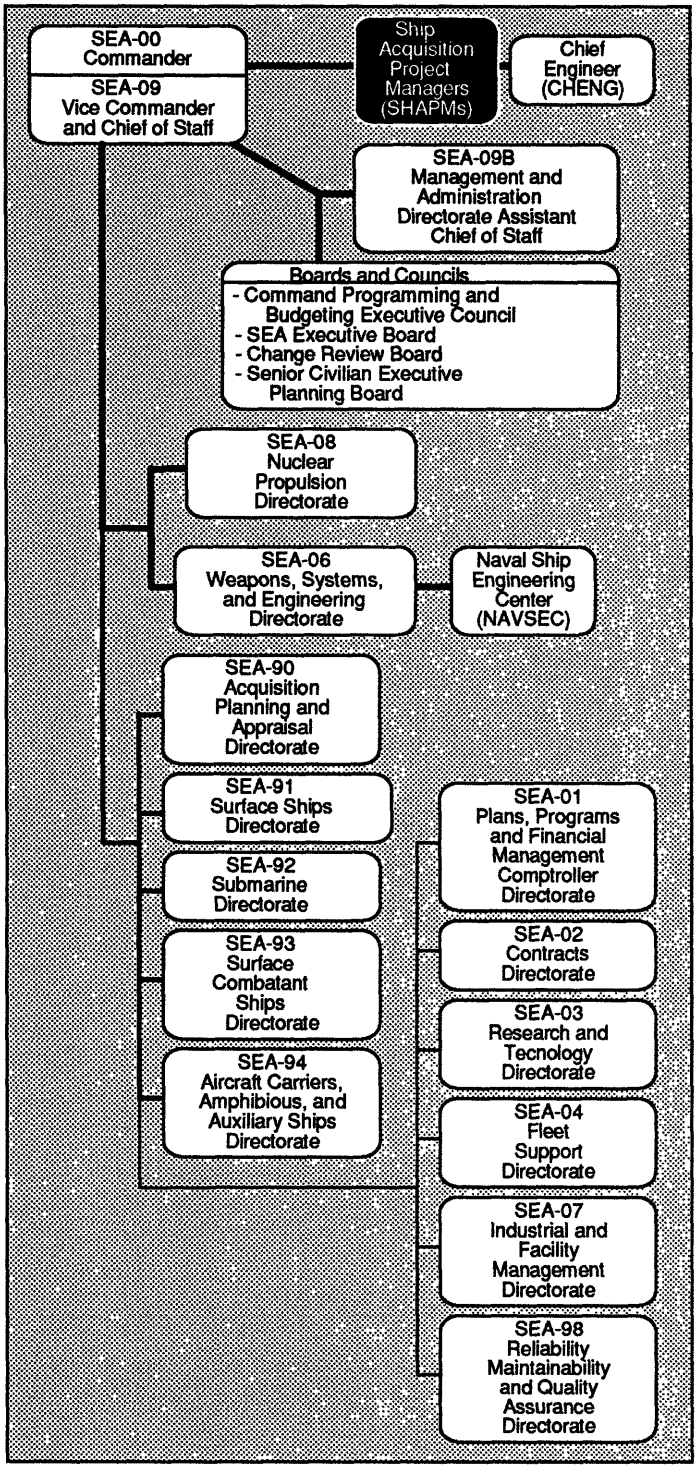
5.8.2 NAVSUP: Naval Supply Systems Command

- Ships Parts Control Center (SPCC)
- Materials - handling equipment not otherwise assigned
- Naval material for which responsibility is not otherwise assigned
- Warehousing operations

5.8.3 NAVFAC: Naval Facilities Engineering Command

- Ocean fixed surface and subsurface facilities and support systems
- Assigned matters related to energy (conservation, acquisition, etc.) and the Environmental Quality Program

5.9 Ship Acquisition Manager (SHAPM)



The SHAPM, typically a Navy Captain is delegated the responsibility of procuring ships from both the commercial and the Naval shipbuilding industrial base in a formal letter referred to as a "charter". This charter is issued and approved by the Commander, who is a three star Admiral. The charter defines the chain-of-command and scope of the SHAPM's responsibility with specific reference to exercising the authority within the parameters and guidelines of governing directives. The charter also emphasizes that the programs be conducted in strict compliance with any performance, funding, schedule or other guidance, as legislated. Governing directives are issued by the Department of the Navy, the Department of Defense, and Office of Management and Budget (OMB), while legislated directives are such things as Congressional authorizations, appropriations, and the like.

Although as the responsible executive the SHAPM is

authorized to act on his own initiative in matters affecting all of his ship programs, he has limitations set forth in the directives. The authority given the SHAPM implies that he has total accountability for the performance of the programs within the authority delegated. In the Naval Sea Systems Command, the SHAPM is delegated full authority to exercise technical and business/financial management control to accomplish the program objectives. The planning, direction, control and utilization of assigned program resources is under his authority, and it is up to him to provide direction to the program support effort being performed by other organizations.

Limitations on the authority of the SHAPM are effected by budgetary considerations and the funding category constraints, pertinent to the type of funds the SHAPM is authorized to obligate and expend. The following list shows examples of the funding types:

SCN funds.....Ship Construction Navy

RDT&EN funds.....Research, Development, Test and Evaluation, Navy

O&MN funds.....Operations and Maintenance Navy

OPN.....Other Procurement Navy

Further limitations are imposed by the availability of the required resources and manpower to satisfactorily support the program.

As was shown in the NAVSEA summary diagram, the ship acquisition project manager (SHAPM) is responsible to the Commander, COMNAVSEA. Historically, NAVSEA has employed a matrix organization for ship acquisition where the SHAPM heads a small project organization that coordinates and manages the efforts of the larger functional organizations that affect its projects. These functional organizations customarily assign key participants to fulfill their responsibilities to the project, but it is the organizations that must report directly to the Commander, NAVSEA.

SHAPM staffs are relative small and rely on support from NAVSEA and NAVSEC for such functions as technical advice, contracting, procurement of government-furnished equipment (GFE), and training. SHAPMs focus on functions such as risk analysis, configuration management, and the development of integrated logistic support plans. The SHAPM has authority over the change control board and thus decides the mandatory or desirable nature of proposed ship changes as well as the timing of their

implementation. The SHAPM also controls project funds and has the authority to manage the scheduling and the provision of the diverse services, materials, and data which are the Navy's responsibility in a shipbuilding contract. This is done through a system of ship project directives (SPDs). Participating managers (PARMs) provide a number of these services, particularly the procurement of GFE and government-furnished information (GFI).

SHAPM Responsibilities

- Risk Analysis
- Configuration Management
- Logistic Support Planning
- Change Control Board
- Project Funds
- Scheduling
- Material and Data Provision

Further examination of the SHAPM responsibilities show that they can be broken down into three areas: development, design, and construction.

5.9.1 Development:

The SHAPM is charged with developing an organization and planning to efficiently acquire the appropriate number and type of ships to meet Navy requirements as set forth by the Chief of Naval Operations. To help in this task the SHAPM is normally provided with a business/financial manager, a logistics manager, a technical manager/system engineer, a contracts officer, program engineers, and various specialists to provide a well balanced management team.

This management organization is responsible for the development of a series of management plans. The most important plan is the acquisition plan which represents the overall strategy to attain the end objective of an effective operational ship. This plan is supported by several other important plans such as an integrated logistic support plan. This plan is developed for the support and guidance in all stages and elements of ship support. An additional Test and Evaluation Master plan is created to specify the operational test requirements, the integrated test and evaluation requirements for the various inspection or certification agencies, and the schedule and resources required for accomplishment.

5.9.2 Design:

The Naval ship design process is the production of the concepts, plans, drawings, and specifications needed for assembling and integrating technological components to produce ships and ship systems with capabilities to meet Navy mission performance requirements. This involves developing and reviewing the adequacy of hull design, machinery design, and full ship system integration. This also includes the review of software and hardware design. The design process for

either new construction or conversion can be described by four phases.

1. *Feasibility Studies* - The need for particular ship types is considered and the first general description of the selected ship type is developed in broad terms of performance, cost and schedule. All alternative designs are considered in this phase. These alternatives include the feasibility of conversion versus new construction.

2. *Preliminary Design* - The engineering characteristics of the principal alternatives are established and outlined.

3. *Contract Design* - The plans and specifications are developed to sufficiently enable a qualified shipbuilder to develop a proposal for construction. On some less complex ship acquisitions, a performance specification called a Circular of Requirements is developed rather than a more detailed Contract Design.

4. *Detail Design* - The final ship configuration is developed. This includes the identification of components and production of detailed working drawings, reports, and bills of materials.

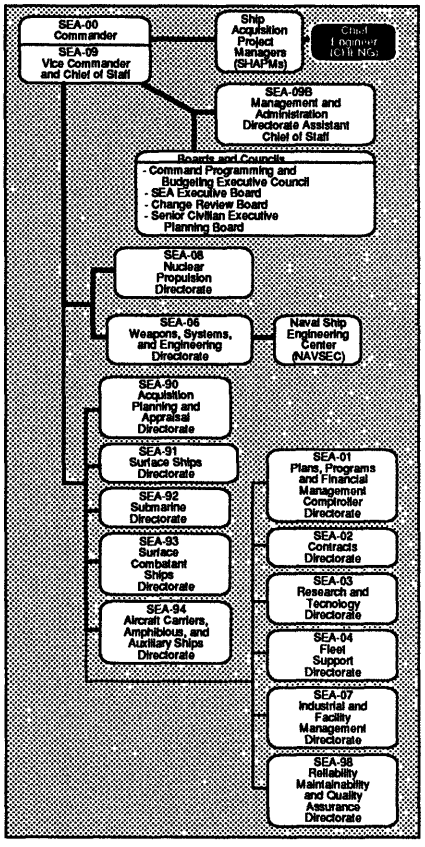
The first three phases are generally done in house, particularly for the more complex ships and submarines, whereas the Detail Design is always done by a lead shipbuilder or design agent. Some Preliminary and Contract Designs may be developed by a contractor or lead shipbuilder as was done with the DDG 51. For procuring less complex ships, a Circular of Requirements is normally used instead of the Contract Design. When the design is farmed out, the services of the Contractor or shipbuilder may be obtained through the functional codes or total farm-out, via a Procurement Request (PR) to competitively-selected design agents or lead shipbuilders. The determination as to whether the design will be done in house or by a Contractor or shipbuilder depends on the design/acquisition plan, in-house design workload and ship type.

5.9.3 Construction:

Upon contract award the contractor begins executing the shipbuilding effort in accordance with the ship specifications, contract drawings, and contract guidance drawings. However, it is the SHAPM who remains responsible even throughout the construction phase for the successful completion of the ship within the established constraints.

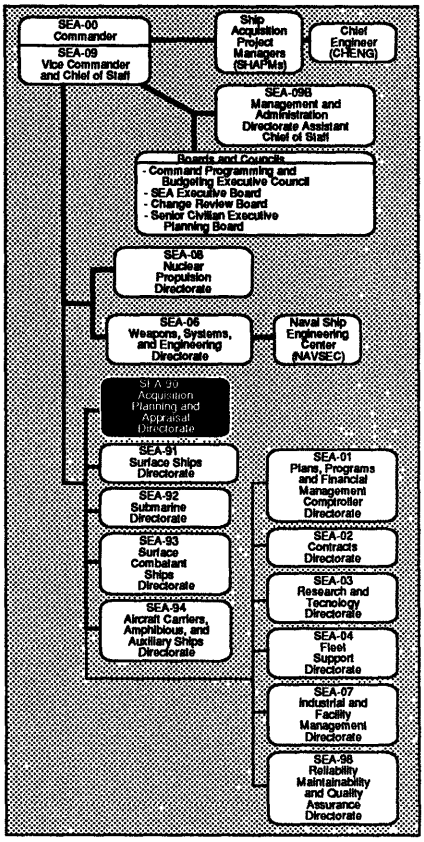
5.10 Supervisor of Shipbuilding (SUPSHIP)

The Supervisor of Shipbuilding (SUPSHIP) is the Navy's representative at the contractor's shipyard and administers the shipbuilding contract. As such, he is the SHAPM's prime working interface and has daily contact between the SUPSHIP office and the SHAPM office. He coordinates the activities of representatives of other governmental elements at the shipyard to achieve the overall objective of the construction phase. As the ship progresses through the construction phase, the SUPSHIP participates in the required inspections. To ensure good communications back and forth on daily details and problems during construction, the SHAPM stations a Program Manager's Representative (PMR) at the building site.



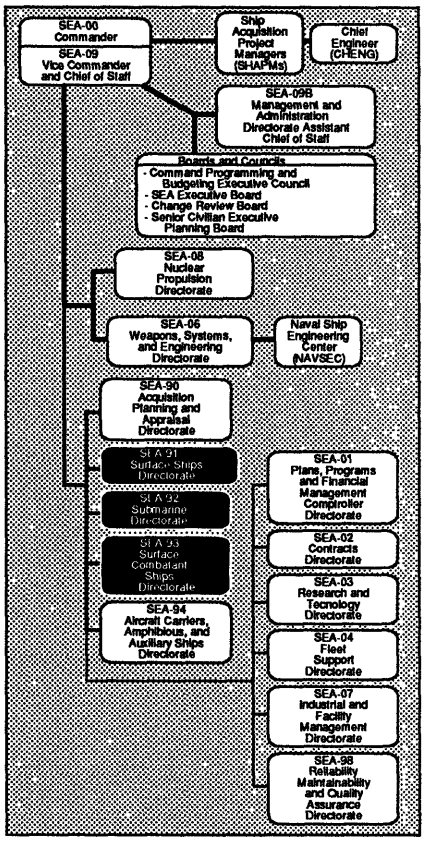
5.11 Chief Engineer of the Navy

For support of NAVSEA Managers in technical and logistic matters, the Chief Engineer of the Navy (CHENG) acts for the Commander, Naval Sea Systems Command. The responsibility is given to the CHENG for establishing policy, exercising oversight, making the necessary reviews and approving actions to ensure the engineering and logistic aspects of development, acquisition and life-cycle support are maintained at a high quality level. The acquiescence of the Chief Engineer is needed in procurement plans/contract awards to assure adherence to technical standards.



5.12 Acquisition, Planning, and Appraisal Directorate

Command level coordination, integration oversight, and assessment of all NAVSEA functions necessary for the proper planning, implementation, and control of the acquisition of ships, ship systems, weapons and combat systems are provided by the Acquisition, Planning and Appraisal Directorate (SEA 90). SEA 90 acts for the Commander, Naval Sea Systems Command on overall ship, ship systems, weapons, and combat acquisition matters. Thus SEA 90 provides oversight to the SHAPM's acquisition program. To ensure compliance with existing policies, SEA 90 also reviews and approves the SHAPM's Acquisition Plan and supporting plans.



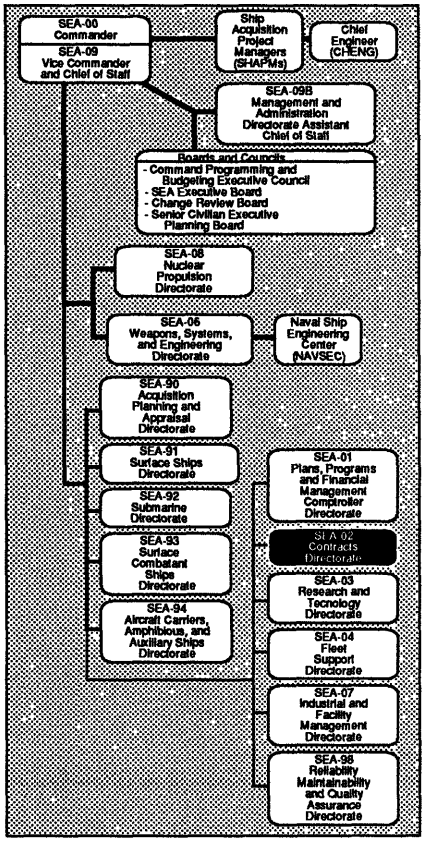
5.13 Directorate Deputy Commanders

The Deputy Commander of each directorate SEA 91 through SEA 94 assists the COMNAVSEA in coordinating the activities of the Deputy Commander's respective SHAPM. This ensures compliance with higher authority and policy. The particular areas of responsibility are classified as Surface Combatant Ships (SEA 91), Submarines (SEA 92), Amphibious, Auxiliary, Mine and Sealift Ships (SEA 93). and Aircraft Carriers, Amphibious, and Auxiliary Ships (SEA 94). The Deputy Commander of each directorate also ensures correlation between the management and the Ship Logistic Division's logistic support and life

cycle function. It is also their responsibility to monitor the performance of their SHAPMs and supporting staffs, and advise COMNAVSEA of this performance. Each SHAPM's administrative support is coordinated and personnel allowances made by the Deputy Commander.

5.14 Ship Logistics Manager (SLM)

From the time of assignment to the operating forces until ultimate retirement and disposal, the fleet support, overhaul and modernation of ships is the responsibility of the Ship Logistics Manager (SLM). In SEA 92, the cradle-to-grave management of major naval systems is being transferred to a single office for each submarine type. When this transfer of responsibility is completed in SEA 92, the submarine related SLMs should disappear from the organization. This same reorganization may be seen in the other Platform Directives.



5.15 Contracts Directive (SEA 02)

The Contracts Directive (SEA 02) supports NAVSEA Managers as the contracting officer. As the contracting officer, SEA 02 primarily plans, selects, negotiates, awards, administers, and terminates contracts. SEA 02 also serves as advisor by providing assistance to the Commander and NAVSEA functional elements in all matters relating to contract administration and contractors. SEA 02 is the focal point for the Command. As such, it develops and promulgates contract policies and procedures for NAVSEA and its Administration Contracting Officers (ACOs). In addition, SEA 02 aids and advises the SHAPM in advanced acquisition planning and determines overall contracts strategy and tactics. It is

SEA 02's responsibility to ensure compliance with Federal Acquisition Regulatory System (FAR's) policies and approve business clearances and other contract-related documents such as Justification and Approval (J&A). An individual SEA 02 contracting officer is designated to assist each SHAPM in contractual matters.

5.16 Commander, Military Sealift Command (COMSC)

Certain SHAPMs maintain a liaison with the Commander, Military Sealift Command (COMSC) for ships operated by the Military Sealift Command (MSC). The responsibilities of MSC include:

1. establishing guidance for the development of maintenance and logistic support concepts and plans
2. providing significant historical operational data for consideration during design
3. acting as an interface for interpretation of commercial specifications, regulations, or directives applicable to design and construction of T-ships
4. providing manning requirements in conjunction with design development
5. providing a voting member to the Ship Characteristics Improvement Board (SCIB) for all T-ship acquisitions.

The Chief of Naval Personnel (CHNAVPERS) is responsible for managing the personnel necessary for the deployment of a new system. This task is made difficult by the long lead times involved. The acquisition process actually forces the required personnel utilization (manning) and detailing decisions (training, etc.) to be made concurrently with construction.

5.17 Oceanographer of the Navy (OCEANAV)

The Oceanographer of the Navy (OCEANAV) coordinates with the mission and resource sponsors in providing detailed recommendations for oceanography. These recommendations include mapping, charting, and geodesy. The OCEANAV also ensures

that the design and development of platform and weapons systems are optimized relative to Naval oceanography.

5.18 Instrumentation Ships Project

The Joint DoD-NASA Agreement established the Instrumentation Ships Project to perform joint agency reviews of the status, progress and resolution of conflicts in Navy, Air Force and NASA policies for range instrumentation ships.. The SHAPM has joint participation in all phases of the instrumentation ship acquisition process. The sponsors provide performance specifications for instrumentation supporting their requirements to the SHAPM. The sponsors also help the SHAPM evaluate contractor responses for instrumentation and monitor subsequent implementation. Through separate agreements both NASA and the Air Force may provide liaison officers to the SHAPM for their respective programs.

5.19 Coast Guard

The federal agency responsible for the approval of designs, construction plans, shipyard assembly, safety, and maintenance of commercial vessels under U.S. registry is the Coast Guard. Organizationally, the Coast Guard is located within the Department of Transportation rather than the Department of Defense.

5.20 American Bureau of Shipping (ABS)

The American Bureau of Shipping (ABS) is used to verify the quality of certain design aspects on certain Navy ships. ABS is a commercial practice that develops rules to establish minimum design criteria. This criteria is used by ship owners and insurers to assure the fitness of a ship for its intended purpose.

5.21 Director of the Strategic Systems Program (SSP)

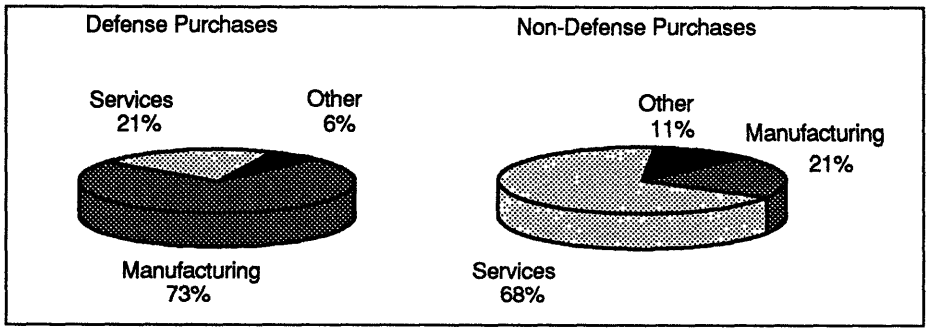
The Director of the Strategic Systems Program (SSP) is responsible for the direction, control and integration of all Fleet Ballistic Missile (FBM) efforts. The SHAPM is the primary ship program manager for the SSP support ships, but operates under the direction and financial control of the Director in accomplishing the plans, programs and schedules of the SSP.

6 Industry's Role

Virtually all production and most system developments come from industry. A single weapon system contract often spans a decade or more, and might represent most of a firm's business base. So, who comprises the defense industry and how do they compare to their non-defense counterparts?

The U.S. defense industry is formed of primarily publicly held corporations. These corporations may be conglomerates with a wide customer base or multi-national in nature, but many are defense dependent. The firms which have contracts directly with the Navy, Air Force, or other service branch are referred to as "Prime Contractors". However, these firms often sub-contract to other companies for supplies or technical support.

So, what are the differences between the defense and non-defense industries? The most significant differences are in terms of structure and employment. Defense related industries are weighted much more heavily towards manufacturing than their non-defense counterparts which are service based. Purchases by the defense industry are 73% manufacturing while those of the non-defense industry are on 21% manufacturing.[20] This is an important indicator. It means that the ability of the U.S. to produce and maintain an effective defense rests heavily on the state of the U.S. manufacturing industries.



[20] Air Force Acquisition Fundamentals Study and Guidebook, 18 February 1992, page I-2-95

7 Procurement Regulations and Directives

The following is a description of some of the procurement regulations and directives that NAVSEA lists as being of major interest to its contractual and technical field personnel.

7.1 Federal Acquisition Regulation (FAR)

The Federal Executive agencies' primary regulation for acquisition of supplies and services is the Federal Acquisition Regulation (FAR). This regulation and agency supplemental regulations superseded or replaced the Federal Procurement Regulations System the Defense Acquisition Regulation and the NASA Procurement Regulation. The FAR precludes agency acquisition regulations that unnecessarily repeat, paraphrase, or otherwise restate the FAR and limits agency acquisition regulations to those necessary to implement FAR policies and procedures within an agency. The FAR provides for coordination, simplicity, and uniformity in the Federal acquisition process.

7.2 Department of Defense FAR Supplement (DFARS)

The Department of Defense (DoD) FAR Supplement (DFARS) is issued by the Secretary of Defense and establishes uniform policies and procedures, which implement and supplement the FAR, for DoD. Containing guidance and direction to DoD personnel as to which provisions, clauses, cost principles, and cost accounting standards are authorized for DoD contracts, the DFARS indicates the procedures and actions that must be followed in awarding and administering DoD contracts. Not intended to act as a stand-alone document, the DFARS contains material that implements the FAR, as well as supplementary material that is unique to the DoD.

7.3 Navy Acquisition Procedures Supplement (NAPS)

A supplement to both the FAR and the DFARS, the Department of the Navy Acquisition Procedures Supplement (NAPS) implements and establishes Department of the Navy uniform policies and procedures for the acquisition of supplies and services. As with the DFARS, the NAPS is not intended to be a stand-alone document and must be read in conjunction with any documents that it supplements.

7.4 NAVSEA Contracting Manual (CM)

The Contracting Manual (CM) provides a single reference document for all NAVSEA contract administration policy that directly impacts the field contracting offices. Issued in accordance with NAPS, the CM is for the use of all field activity contracting offices and is to be considered equally relevant to all NAVSEA field activities except when a part or subpart heading specifies the applicability of the policy. The policies, as provided by the CM, are to be complied with in the administration of all assigned contracts. This includes the placement and administration of Master Agreement Job Orders. Although a single point reference, the CM is to be used in conjunction with the FAR, the DFAR, and NAPS.

7.5 Other Navy Publications

Although the NAPS is the basic procurement publication issued at the departmental level, the Secretary of the Navy (SECNAV) directs the issuance of directives, instructions, notices, and other publications to further refine the procedures. Due to security considerations and other reasons, the distribution of these publications may differ from the distribution of the NAPS. Accordingly, they are generally unavailable to organizations outside the Government.

7.6 Command Publications

Subject to the provisions of FAR 1.3 and FAR 1.4, procuring activities may issue procurement and related directives, instruction, and other publications to implement and supplement FAR, NAPS, and other departmental publications. Accordingly, each command has issued directives, instructions, notices, and other publications necessary for the efficient performance of procurement operations. Command-issued publications are addressed to Navy activities that perform procurement and related functions for the issuing command. Like other Navy publications, the command publications are generally unavailable to organizations outside the Government. A reference index of NAVSEA instructions and NAVSEASYSCOM issued notices is provided by NAVSEANOTE 5215. The NAVSEANOTE also lists any canceled NAVSEAINST instructions.

7.7 SUPSHIP Operations Manual (SOM)

The SOM is issued in accordance with the authority contained in NAPS 1-301. NAPS 1-301 permits procuring activities to issue directives, instruction, and other publications to supplement the FAR, DFARS, NAPS, and other Navy departmental instructions. To the extent that a policy or procedure is not promulgated by the FAR, DFARS, NAPS, CM, or other Navy departmental and DoD instructions, SOM contains the NAVSEA policy and procedures. Where a policy or requirement is not established by FAR, DFARS, NAPS, COM, or other Navy departmental and DoD Directives, SOM contains the procedural requirements for compliance by SUPSHIP. Otherwise, the FAR, DFARS, NAPS, CM, and other Navy departmental and DoD Directives take precedence over the SOM. When a new or revised policy or requirement is promulgated by FAR, DFARS, NAPS, CM, or other Navy departmental and DoD Directives that is inconsistent with the SOM, the new or revised policy and requirements take precedence.

7.8 Field Instructions and Notices

Each SUPSHIP is authorized to issue instructions and notices governing the internal operations of the office. Instructions may be issued to establish or explain

organization, policy, and procedures affecting more than one department of the SUPSHIP office and may remain in effect up to seven years, while notices may be issued to provide information of temporary interest and application to more than one department of the office. Each notice states the limits of its own period of effectiveness for up to one year.

8 The Process

Before one can get to the blocks that comprise acquisition, one must understand how the money is set aside for acquisition. Each annual defense budget takes 27 months of official planning, justifying, and debating before it is adopted. The presidential budget proposal is submitted to Congress every January for the fiscal year beginning the following October. Officials from the Department of Defense make frequent trips to Capital Hill during these nine months to explain their proposals and modify them as per Congressional direction. Before this nine month period of review, the DoD has an eighteen month budget-planning process, and during the twelve month fiscal year the DoD is spending or obligating the money it has been appropriated. If you bother to add these periods up you find that there is a total cycle of 39 months for each annual defense budget.

Because the Department of Defense is spending based on the current budget, testifying in support of the next budget, and planning for the following one or two, the budgets tend to have many interdependencies. As thousands of detailed changes are made in the current and upcoming budgets during their travels through the Pentagon, the White House, and Capital Hill, there is a multiplicative effect of continuous changes taking place in the subsequent year's plans and in the programs themselves. The amount of time, effort, and money expended is significant.

8.1 Planning, Programming, and Budgeting System (PPBS)

The Defense Reorganization Act of 1958 grants the authority to issue decisions regarding threat appraisal, strategy and force structure, and resource program direction to the Secretary of Defense (SECDEF). The normal process by which these important decisions are made is the Planning, Programming, and Budgeting System (PPBS) which was introduced by Secretary of Defense Robert McNamara in 1961. This system was to integrate military planning and budgeting, to combine and prioritize the various services' resource needs, and to introduce a long-term perspective to the planning process. The defense activities were divided into program elements with cost estimates and grouped by mission function into program packages. Ultimately, the PPBS process results in the projection of forces, funding and manpower levels that appear in a Five Year Defense Plan (FYDP). Considerable effort was placed in defining the relative cost effectiveness of

program elements within the program packages such that Pentagon analysts might determine the best way to address particular missions.

The Planning, Programming and Budgeting System incorporated three major innovations: multi-year visibility, multi-organizational mission orientation, and an analytical examination capability to view each major defense segment in terms of need, rationale, and design.[21]

The PPBS evolved through major changes made by each administration. The strategic planning was shifted from the Pentagon to the National Security Council at the end of the 1960s, and the basis for presidentially approved guidance to the DoD for the planning of strategies and budgets became interagency reviews together with their associated force structures and budget levels. The interagency reviews examine a broad range of defense strategies and options, but, unfortunately, these reviews were not continued in later years. The President's Blue Ribbon Commission of Defense Management in 1986, the "Packard Commission", recommended that a revised version of this approach be reinstituted.

Next the office of the Secretary of Defense attempted to develop a capability to examine logistics, manpower, and military bases in the five year resource plan. Most of the classification schema developed at that time exists today in the annual Manpower Report required by the Congressional Armed Services Committee.

Concerned that the Office of the Secretary of Defense was becoming overcentralized with respect to control of resources, a concept of "participative management" was introduced. Although the Secretary provided fiscal guidance, the services would respond with constrained, service-justified programs. The result of this management was large fiscal gaps between the Secretary's budgets and services' plans in the "out years" of the five year plan. These gaps had to be closed in the succeeding budget cycle.

In 1970, Deputy Secretary of Defense, David Packard, established the Defense Systems Acquisition Review Council (DSARC) to discipline the acquisition of weapon systems. Unfortunately the DSARC created confusion in the PPBS because major

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[21] D. Rice, "Defense Resource Management Study: Final Report," February 1979, page 4

weapon system developments frequently consumed a large share of the budget dollars and involved commitments over a very extended number of years. The DSARC process made large out-of-cycle resource commitments that were unmatched by the budget cycle.

Because weapons system life cycles that involved perhaps eight years of development and another ten years of production were inconsistent with a five-year fiscal plan, the "Extended Planning Annex" was introduced in 1975. This annex extended the fiscal planning cycle to fifteen years. However, the budget cycle, and particularly Congress, remained focused on only the first year, and "out-year" plans were given little credibility. In other words, Congress basically ignored the Extended Planning Annex.

In the early 1980s, a Defense Resources Board was established to integrate the essentially two separate defense resources planning cycles, the PPBS cycle and the weapons-acquisition cycle. The Deputy Secretary of Defense chaired this board and gave full participation to the services, along with the Office of the Secretary of Defense. This step went against Secretary McNamara's intentions in establishing the PPBS by decentralizing the resource decision process through the strong role of the services.

In response to the Packard Commission's recommendations, the Department of Defense shifted to a two-year budget in 1987. It should be noted that the fiscal planning horizon was still held to five years. Although it was hoped that Congress would also shift to a two year budget, Congress focused on only the first year of the two-year submittal.

Enough about the intent and history, how does the PPBS work today?

8.1.1 Planning

The first phase of the PPBS is the planning. In this phase, the threat is viewed without budget constraints and the operational and capability planning is mapped out. This planning is linked to two other formal DoD planning systems, the Joint Strategic Planning System (JSPS) and the Joint Operational Planning System (JOPS). These three systems provide the basis for any of the SECDEF's decisions. Implicit within the planning phase are numerous special studies and supporting analyses, some of which may require participation from the SHAPM and his staff.

8.1.2 Programming

The next phase is that of programming which begins in late September for the Navy. This phase translates approved concepts and objectives into time-phased requirements for manpower, funding and material. The approved concepts and objectives are contained in DoD and Department of the Navy (DON) plans. The Manpower and cost data associated with the approved programs are "costed out" five years into the future while the force requirements are projected for eight years. The annual programming process:

- reviews Navy decision making to find the optimum operating forces through trade-offs
- reviews programs against appropriations
- allocates resources for a five-year period
- results in the development of a Program Objectives Memorandum (POM) that proposes changes to the FYDP.

Extensive, interactive cooperation between both the Department of the Navy and the Office of the Secretary of Defense (OSD) and between the Office of the Chief of Naval Operation (OPNAV) and the Naval Sea Systems Command (NAVSEA) is required in the POM development phase. The POM, part of a very complex and detailed phase, is a compromise of program trade-offs, repricing of procurement programs and program stretch outs. It is to present a balanced Navy program within the assigned resource targets and prescribed guidance.

The POMs from each service, Army, Air Force, Navy, and Marines, are submitted to the SECDEF. The Joint Chiefs of Staff (JCS) produces a Joint Program Assessment Memorandum (JPAM) that assesses the risk of the composite force recommendations. The JCS also includes their views on the overall POM force balance and capabilities needed to execute the national military strategy. The SECDEF decisions resulting from a review of the service POMs and consideration of the JPAM are communicated through a Program Decision Memorandum (PDM). The PDM also includes the SECDEF decisions on major program issues related to force levels, support levels and acquisition programs that were prepared earlier by the Assistant Secretaries and submitted with service comments to the SECDEF.

8.1.3 Budgeting

The final phase in the PPBS system is the budgeting. The budget process, an instrument for planning and control, consists of a disciplined approach to the consideration evaluation of proposed program and plans. The process also ensures that executive and legislative decisions and plans are implemented in the execution of the budget and in the uses made of the respective appropriations.

The budget process is itself consisted of three phases, the formulation phase, a justification phase, and an execution phase. Although the formulation phase starts when the POM is wrapped up, it formally commences only when the Comptroller of the Navy (NAVCOMPT) issues the budget call for estimates to be submitted to CNO via the chain of command. This budget call, given in early June each year, contains the guidance received from the Assistant Secretary of Defense (ASD) (Comptroller). The call also contains the content and format of the budget estimate and the submission time schedule.

Formal budget hearings are conducted by the NAVCOMPT to ensure that the budget estimates are within guidance, contain valid costs and pricing, and are financially feasible. These reviews are more detailed and extensive than those made in the POM. In the progress of these reviews, the SHAPM is usually required to defend his budget request. Based on the rationale developed during the reviews, a NAVCOMPT proposed budget mark-up is issued upon completion that may revise the estimates. If there are any differences of opinion, an activity reclama may be submitted. Any differences that the Director of Navy Program Planning cannot resolve are submitted to the CNO and SECNAV for decision. Based on the reclama actions, each echelon revises and resubmits its portion of the budget submission to the NAVCOMPT for assembly and submission to the OSD as the Department of the Navy (DON) budget.

The Office of the Secretary of Defense (OSD) and Office Management and Budget (OMB) normally hold joint review hearings to analyze the budget submittals. This happens about 15 September of each year. Often the SHAPM will be required to justify the budget estimates for his program during both NAVCOMPT and OSD/OMB hearings. The SHAPM's estimates are to set forth exactly what the SHAPM plans to accomplish with the requested resources for the following budget year.

The SECDEF issues individual Decision Package Sets (DPSs) upon completion of

the OSD/OMB reviews. These DPSs are a marked up version of the service estimates to indicate any added or subtracted funds. The OMB has the authority to issue separate marks if it so desires. If the Navy disagrees with any marks, the responsible Navy claimant or SHAPM may submit a reclama through the SECNAV to the SECDEF. The SECDEF's decisions on each reclama are promulgated and the decisions contained in any DPSs which were not appealed become final.

After submission of the President's budget, the congressional hearings begin. The Committees conduct formal and informal hearings that require numerous witnesses from the DON. Witnesses are to defend the value of programs, the need for it during the upcoming budget year and the accuracy of its pricing.

After the House Armed Services Committee (HASC) and House Appropriations Committee (HAC) complete their hearings, they submit authorization and appropriation bills containing their recommendations before the House of Representatives. After these bills have been passed by the House, the Senate Armed Services Committee (SASC) and the Senate Appropriations Committee (SAC) review the bills. After this session of hearings, the bills are brought before the Senate for its vote.

The budget justification phase is concluded after the DoD Appropriations Act is passed. At this time the OMB begins apportionment of the funds within all appropriations. The SECDEF establishes a rate of obligation that the NAVCOMPT follows in allocating funds to responsible officials. These officials are the CNO for Procurement and Military Construction (MILCON), Assistant Secretary of the Navy/Research, Engineering and Systems (ASN (RE&S)) for Research, Development, Test and Evaluation, Navy (RDT&EN). These officials suballocates, issues allotments, or issues operating budgets in turn.

Unless restrictions are placed upon funds by a higher authority, the funds are available for commitment, obligation and expenditure as soon as the SHAPM receives them. A commitment is the reservation of funds. This leads to an obligation which is a liability. An expenditure is the payment of this obligation. The NAVCOMPT and administering offices closely control the allocations, commitments, obligations, and expenditures to prevent over-obligations and over-spending.

8.2 OPNAV Sponsors

The four roles of an OPNAV sponsor are:

1. Program Sponsor
2. Resource Sponsor
3. Program Element Sponsor
4. Appropriations Sponsor

The sponsors facilitate the overall direction and management of the Navy programs.

8.2.1 Program Sponsor

The Deputy Chief of Naval Operations for the ship type under consideration acts as the Program Sponsor. Surface warfare ships and major surface ships weapons fall under OP 03 while submarines are under OP 02 and aircraft carriers under OP 05. The Program Sponsor coordinates the funding requirements of the various appropriations for a given program. This sponsor responsibilities also cover the determination of program objectives, time phased support requirements and appraisal progress, and the readiness and military worth of a given system. These evaluations are based on recommendations from the Program Element Sponsors who manage the subsets of a given program. If funds are programmed for the development and acquisition of a system in more than one appropriation, the Program Sponsor is responsible for coordinating with the Appropriations Sponsors to ensure the program requirements and funding are in balance.

8.2.2 Resource Sponsor

Normally an OPNAV Division Director acts as the Resource Sponsor. The Director represents his Program Sponsor and is responsible for ensuring an effective and balanced program within fiscal guidelines by:

- assembling of the resources that comprise his area
- programming resources
- interacting with the Appropriations Sponsor

8.2.3 Program Element Sponsor

Either an OPNAV Branch Head or an Action Officer will serve as the Program Element Sponsor. This sponsor is responsible for coordinating the funding requirements and providing oversight for a specific program such as a specific ships class. This sponsor manage the subsets of a given program and makes recommendations to the Program Sponsor for the determination of program objectives, time phased support requirements and appraisal progress, and the readiness and military worth of a given system

8.2.4 Appropriations Sponsor

Usually a Deputy Chief of Naval Operations or Director of a Major Staff Office responsible for a given appropriation will act as the Appropriations Sponsor. This sponsor has supervisory control over an appropriation and must support the force levels and program objectives of the Program and Resource Sponsors. If funds are programmed for the development and acquisition of a system in more than one appropriation, the Program Sponsor is responsible for coordinating with the Appropriations Sponsors to ensure the program requirements and funding are in balance.

8.3 Appropriations

The Congressional appropriation of funds are categorized as:

- one-year
- multi-year
- no-year (continuing)

These limits define only the period for which the appropriations are available for obligation. Unless an act specifically provides otherwise, the funds carried in the annual appropriation acts of Congress are one-year appropriations. The pay and allowances of military personnel and the maintenance and operation of the services, two of the principal

appropriation headings in the Department of Defense appropriation acts, have only a one-year period of obligation. This forces the funds in these appropriations to be either spent or obligated for future expenditure by a contract or other obligation entered into within the fiscal year for which they are made. The appropriations for a specific multi-year period will expire unless expended or obligated during that period. Frequently a continuing or no-year appropriations is made for programs such as shipbuilding and remains available for five years in most cases. Programs for research, development, test and evaluation RDT&EN are incrementally funded over a period of five years.

Although one-year and multi-year appropriations expire if not expended or obligated during the periods for which they were appropriated, this does not mean that they cannot be used. These expired appropriations continue to remain available for certain uses. Such appropriations can be recovered to fund increased expenditures under the contracts entered into during the period for which the expired appropriation had been made.

The early conceptual efforts for a new ship are provided for by RDT&EN funds. These efforts include feasibility studies, preliminary design, contract design, and solicitation package preparation. The detail design and ship construction may also be provided for with these funds if the ship is an innovative new ship class involving considerable risk. The DON policy is to request RDT&EN funds on an annual incremental basis. SEA 05R controls these funds and apportionment to the SHAPMs are made through him. The construction, acquisition or conversion of naval ships is provided for by Shipbuilding and Conversion, Navy (SCN) appropriations. The principal line item in the SCN budget is the ship project. Other line items are things such as advance procurement outfitting, post delivery, and escalation and cost growth, if appropriate. It is the SHAPM's responsibility to ensure that the RDT&EN funding is cross-referenced to ships planned for construction or conversion in the SCN portion of the FYDP, and that the total program is logical and balanced.

Other normal SCN appropriations include conversions and SLEPs. A conversion is the changing of a ship's mission or classification type. This may be separate from a Service Life Extension Program (SLEP) which significantly extends the useful service life of a ship beyond the initial design life.

The procurement costs of Government Furnished Equipment (GFE) and associated

training devices may be budgeted and funded under SCN given the devices meet the following conditions. A device must duplicate a shipboard item that is the first of a kind and it is necessary to train pre-commissioning crews. If the training equipment or device meets the RDT&EN or SCN criteria for funding, it will be budgeted and funded under the lead ship or the first production of ships. Otherwise, the equipment or device will be budgeted and funded in the Other Procurement, Navy (OPN) account.

As mentioned earlier, Post Delivery funds are appropriated from the SCN account. These funds are used to correct any deficiencies identified during acceptance or underway trials (AT/UT) and approved by the SHAPM or any deficiencies that develop during the Post Delivery period. Included in this is the related design, planning and procurement of government furnished material (GFM). The Post Delivery funds are charged to the fiscal year program in which the work is scheduled to be performed. The deficiencies are corrected during a Post Shakedown Availability (PSA) that is explained later.

Qualification for SCN funding is dependent upon Ship Characteristics and Improvement Board (SCIB) approval. Any ship characteristic changes are subject to this review and must be performed prior to the ship's SCN funding period expiration. The SHAPM prepares the cost estimates upon which the funding is based. If the estimates are too low, the SHAPM must fund the cost growth from his SCN funds.

Expenses that are necessary for the operation and maintenance of the Navy, but are not otherwise provided for are funded by the Operation and Maintenance of the Navy (O&MN) account. The training of the precommissioning crews is normally funded through this account. The exception to this is the possible SCN funding previously mentioned.

Overhaul/modernization is the repair of a vessel or the incorporation of military and technical improvements into the ship without changing its mission or extending its useful service life. This overhaul and modernization is budgeted through O&MN appropriations for items classified as expenses and OPN for items classified as investments.

The RDT&EN is available for obligation for two years; the OPN for three; and O&MN for one. The SCN appropriation should be legally available for obligation for five years, but the SECDEF has placed various limitations on the availability of SCN funds for

obligation. Thus SCN funds are available for five years for new construction, three years for conversion projects, and two years for post-delivery and outfitting projects. If circumstances warrant, the CNO may authorize an extension of the two and three year limitations, but it is not to exceed five years.

The SCN funding obligation and work limiting date is established at the end of the eleventh month after completion of fitting out. This means that for ship projects all funds for work and material must be obligated, and all work must be completed prior to expiration of the eleven-month period.

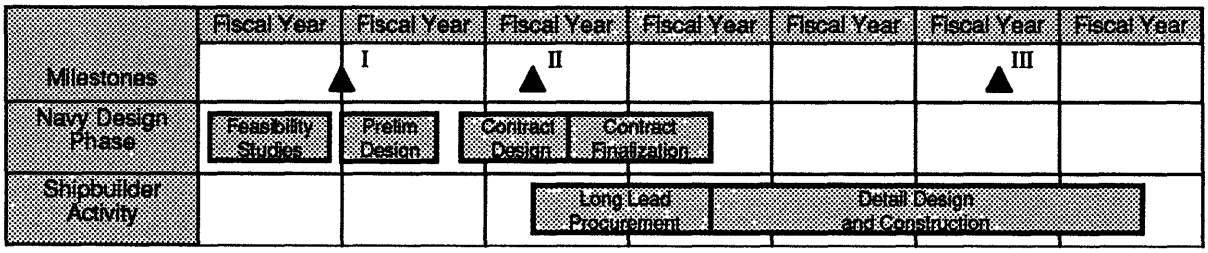
If the SCN funding is terminated under the obligation and work limiting date (WLD), any further ship costs must be funded from other appropriations in accordance with the criteria applied to active ships. The money in the SCN fund cannot be used to purchase any material/equipment that would be installed after the expiration of the SCN (WLD) period. Likewise, any work or procurement that was programmed under SCN funding cannot be completed with money from other appropriations.

The Ship Project Directive (SPD) System, the SHAPMs' primary vehicle used to specify and control their project tasks, assigns various Navy organizations such as Participating Managers (PARMS) to perform work under RDT&EN, SCN and OPN appropriations. The SPD also documents the agreements made on tasks, schedules, and financial resources. The SPD is revised to indicate the status of funds appropriated and made available to the SHAPM. This shows the transition from a "planning" document to a funded or "contractual" SPD.

Funds made available to a SHAPM are controlled through the NAVSEA Comptroller who develops a yearly chart for each appropriation that NAVSEA has financial responsibility. Each account identifies the financially responsible administrator with appropriate accounting and descriptive data for their accounts. The funds are released early in the fiscal year, but only after the SHAPM has submitted a detailed financial plan consisting of his obligations, commitments and uncommitted balances for that year. The distribution of these SHAPM funds is done through SPDs, allotments, project orders, and work requests.

This leads us to the acquisition process which is composed of the following phases: Cost and Feasibility, Preliminary Design, Contract Design, and Production and

Deployment. These phases contain three important Milestones as seen in the following diagram.



Milestones of the Acquisition Process

8.4 Cost and Feasibility

The first of these phases, Cost and Feasibility, begins upon the recognition of a need such as a requirement deficiency, a capability expansion, or a technical opportunity to increase efficiency. Often an existing SHAPM office is used in the initial stages of this phase. This is especially true if a charter to examine a similar design has already been issued to a Program Manager.

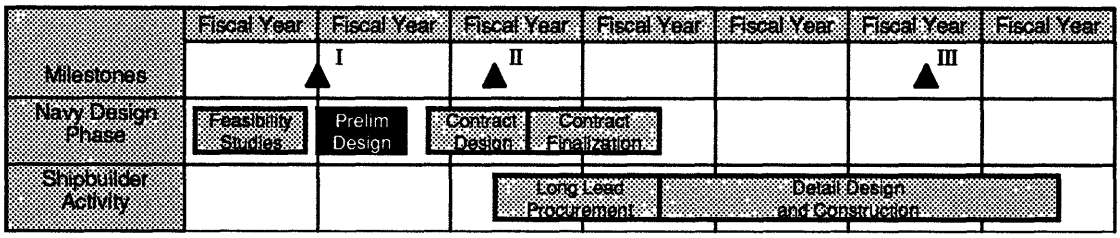
Upon recognizing the need for a new ship acquisition or a major ship modification, the Office of the Chief of Naval Operations (OPNAV) provides NAVSEA with a Tentative Operational Requirement (TOR). The TOR, which contains a general statement of desired capabilities, marks the beginning of the feasibility phase. This allows NAVSEA to explore a wide range of options in achieving the performance objective. The TOR requirements are developed by the Ships Characteristics and Improvement Board (SCIB), an advisory board to the CNO Executive Board. The SCIB specializes in ship acquisition and modifications.

The SHAPM, NAVSEA designers, and SCIB work together during the initial phases. NAVSEA performs feasibility studies and presents a Development Options Paper (DOP) outlining the range of alternatives. The DOP states the costs, capability and time required for every option from upgrading existing systems to advanced capability concepts. The cost estimates include RDT&E and unit production/procurement cost as well as life cycle costs. However, the life cycle costs are only based on a life of five years. The SCIB then selects the DOP option which best meets the desired capabilities, schedule, and cost.

At this point, the OPNAV sponsor enters the program into the Planning, Programming and Budgeting System by developing a requirements document. This document would be a Justification for Major System New Start (JMSNS) for ACAT I Programs or an Operational Requirement (OR) for all other programs. The ACAT classifications will be detailed in the next section. Both the JMSNS and the OR documents specify performance characteristics, schedule, and cost. Before OPNAV can issue a JMSNS or OR, the Director of Naval Warfare (OP 095) must approve them. Even if a program is approved, it would not be included in the Program Objectives Memorandum (POM) until the next or second fiscal year of that POM. The POM is an element of the Defense Planning, Programming and Budgeting System (PPBS) cycle and will be discussed later. If the program fails to receive funding after two successive POMs, it is canceled.

The first Milestone is the SCIB selection of which concept to pursue, and commencement of the Preliminary Design. Before this Milestone is reached, a review of the technology base must be conducted. This is done within the feasibility phase to assure that the technology base is capable of meeting the system need. This assurance is needed to warrant proceeding into the Preliminary Design.

8.5 Preliminary Design

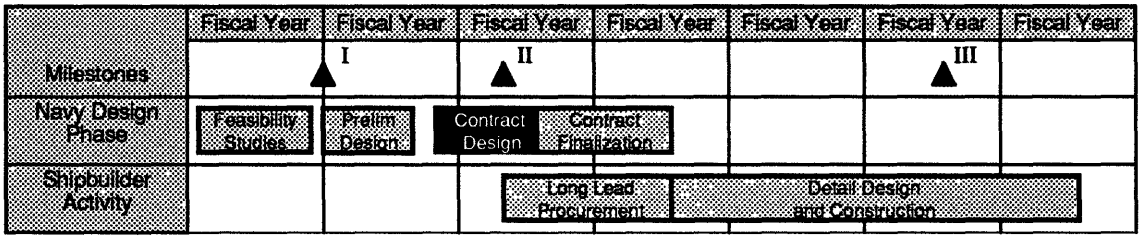


The Preliminary Design establishes the technical feasibility of the design and leads to the SCIB draft of a Top-Level Requirements (TLR). This draft TLR outlines the operational requirements of the ship to be produced and stipulates the constraints. These constraints are the maximum cost and other program limitations affecting the ship design and utilization.

After the Preliminary Design is completed, COMNAVSEA presents a Preliminary Design Report (PDR) as a formal reply to the JMSNS/OR. The PDR details the ship

design characteristics compatible with the draft TLR and updates the ship acquisition cost estimate. Any unresolved issues are identified and settled. The SCIB then performs a second review of Preliminary Design outputs and provides recommendations on TLR approval. A TLR approval marks the initiation of the next phase, Contract Design.

8.6 Contract Design



The Contract Design allows a shipbuilder to estimate the work required, and to offer a proposal for ship construction. The engineering work during this period tends to be expensive because it is careful, iterative and detailed. The layout of vital ship spaces are developed, various subsystem configurations defined, and several specification documents prepared.

Commercial design agents and/or shipbuilders may now participate in the design process. The benefits of this are:

- reduced potential for changes during the ship construction process
- improved ship producibility
- reduced risk in terms of timely ship delivery
- more complete and timely ship construction support in such areas as:

  Government Furnished Equipment (GFE)
  Government Furnished Information (GFI).

This phase yields a product baseline configuration design and documentation package that reflect the established cost, schedule, logistic supportability, and performance constraints. This information is contained in specifications, drawings, and similar documents. Before the second Milestone is reached, the SCIB conducts a full review and makes recommendations for lead ship production. The SCIB will present other production recommendations to higher authorities as appropriate. A Decision

Coordinating Paper (DCP) or Navy Decision Coordinating Paper (NDCP) is developed for ACAT I and ACAT IIS programs respectively. The DCP is reviewed by the JRMB while the NDCP is reviewed by the NPDM. A discussion of the ACAT classifications will be given later.

Upon Milestone II approval, the Contract Design is completed and COMNAVSEA develops the Contract Design Report. This report presents a summary of how the ship meets the requirements and constraints of the TLR.

The Circular of Requirements (COR) might be used instead of the Preliminary and Contract Design method just discussed. If used, the COR provides a broad, general overview of the ship expressed in performance terms. This does not have the detail or definition of the Preliminary and Contract Designs.

Before continuing on to the Detail Design phase, one must look at how the contractor is selected. This includes a look at "Acquisition Planning"

8.6.1 Acquisition Planning

Acquisition planning is the process by which the efforts of all personnel and activities engaged in the acquisition of defense material is integrated into a comprehensive plan. The SHAPM has the overall responsibility for acquisition planning, including the Acquisition Plan and Source Selection Plan.

The Acquisition Plan (AP) charts a program over its entire acquisition cycle. The AP provides direction and guidance for the development of the Source Selection Plan (SSP) through its acquisition objectives and strategy. The AP also serves as the basis for other program management documents such as the Justification and Approval (J&A) and the Program Endorsement Memorandum (PEM). These will be discussed later.

An AP is not required for:

- military construction,
- commercial items sold in substantial quantities to the general public,
- spare and repair parts,
- items of supply which are managed on a national basis where requirements are

computed in accordance with established DoD/Navy inventory management policy/regulation,

- overhaul and/or modification of naval vessels, small vessels and crafts,
- overhaul and/or modification of engines,
- operation and maintenance of weapon test/training ranges,
- ocean towage,
- commercial activities,
- architect-engineer services,
- major station maintenance and repair,
- component overhaul/maintenance/repair at the depot, intermediate or organizational levels.

8.6.2 Planning of Source Selection

Various portions of the SHAPM's responsibility are delegated to outside organizations. This relationship between government and industry is defined in a contract in terms of objectives, responsibilities and authority. The contract also indicates the control and flexibility for timely modifications. Even with such a contract, the SHAPM remains responsible for meeting the program objectives, controlling/monitoring the contract effort, ensuring no prerogatives are surrendered to the contractor, ensuring legal and procedural requirements are met, and utilization of technical government personnel for advice and assistance.

The SHAPM has direct involvement in the shaping of a contract team, the source selection, contract negotiation, competition establishment, and contract management.

The contracting team is established to assist the SHAPM in source selection and contract planning. The SHAPM establishes and defines the functional make-up of this team. He is to monitor the progress of said functions to ensure that they have adequate staffing and are carried out in a timely manner. The SHAPM actually places his own staff and groups in SYSCOM Headquarters or Navy laboratories/centers to provide himself with any assistance he might require. The SHAPM's team includes:

- Project Management (i.e., APM)
- Legal Counsel
- Contracting Officer
- System Engineers
- Experts in specific technologies
- Specialists in reliability, production engineering and documentation
- Administrative personnel

Although the team includes a legal counsel, it is the Contracting Officer's responsibility to ensure that the contract meets all legal requirements. The Contracting Officer is the one who signs the contract and authorizes any changes/modifications to the contract.

The contract team meets on a regular basis to plan and review the acquisition program's progress. The SHAPM acts as the chairman for all of these contract planning meetings. The documentation of these meetings is distributed to the team personnel in the form of minutes.

8.6.3 Solicitation Preparation

In preparing the actual solicitation, the SHAPM works closely with the contracting team, contracting officer, and his staff. The procedures for this preparation are outlined in DoD Directive 4105.62, Subject: "Selection of Contractual Sources for Major Defense Systems", and NAVMATINST 4200.49, Subject: "Selection of Contractual Sources for Major Defense Systems". Additional guidance is given by the contracting officer and legal council.

The solicitation is composed of a program summary, background/history, program objectives, contract type, pricing terms, mission elements, acceptable performance standards, operational environment, required MIL-SPECS/interface, Statement of Work, CDRLs, proposal evaluation criteria, submission instructions, and schedule of the respective ship program.

One of the SHAPM's primary objectives is to determine the appropriate type of contract. The normal contract types used in ship acquisition are:

- Firm Fixed Price Contract (FFP)
- Fixed Price Incentive Fee Contract (FPIF)
- Cost Sharing Contract (C/SC)
- Cost Plus Award Fee Contract (CPAF)
- Cost Plus Incentive Fee Contract (CPIF)

The Firm Fixed Price (FFP) contract is used if a fair and reasonable price can be determined. With this contract, the contractor must carry all of the risk. The Navy pays the specified priced upon delivery regardless of the contractor's actual cost.

In an effort to encourage the contractor to increase efficiency and reduce costs, the Fixed Price Incentive Fee (FPIF) was developed. This contract contains a target cost, target profit, ceiling price and share line. If the target cost is exceeded, the contractor's profit will be less than the target profit. The ceiling price is the maximum amount the government will pay regardless of the contractor's cost. The share line represents the ratio of cost/profit shared between the Navy and the contractor. For example, an 80/20 share line means that the Navy will pay 80% of the cost. Thus if the contractor comes in under the target price, the contractor gets 20% of the savings. However if the contractor goes over the target price, the contractor pays 20% of the cost overruns. Receiving 20% of the savings should give the contractor a higher profit than if the contractor met the target cost.

The contract that has the least risk to the contractor (and most risk to the Navy) is the Cost Plus Fixed Fee (CPFF) contract. This contract is generally used for research and development or production tasks where the cost estimates are impossible to obtain. The Navy pays all of the contractor's costs plus a fixed fee. This fee is limited to 10% for production efforts and 15% for research and experimental work.

The contract normally used for research and development is a Cost Sharing (C/CS) contract. In C/CS, the contractor is paid based upon a ratio of total allowable costs. The contractor will be reimbursed for at least all of the allowable costs.

The Cost Plus Award Fee (CPAF) contract is similar to the CPFF, but the fee

is determined during contractor performance. This type of contract is normally used in efforts where it is impossible to predict actual measures of achievement. The CPAF) is composed of two elements. The first element is a base fee that is used to compensate the contractor at a minimum level throughout the contract period. The second element is an award fee that is used to reward the contractor for performance above the minimum level of performance. The award fee has a cap.

A variation on the CPAF is the Cost Plus Incentive Fee (CPIF) contract. In a CPIF contract, the contractor is reimbursed for all allowable cost plus a fee. Although there is no ceiling on the cost, there is a ceiling on the fee. The elements of the CPIF are a target cost, target fee, a minimum and maximum fee and a share line. This contract is like the FPIF in that the contractor is rewarded for keeping the project below cost and shares in the cost of all overruns.

Factors the SHAPM must consider in selecting the type of contract to use include technical risk, cost risk, and schedule risk. The recent trend has been to select the contract type which encourages competition and minimizes the government's risk. When it is possible to adequately define and scope the work package, the Fixed Price Incentive Fee contract is encouraged.

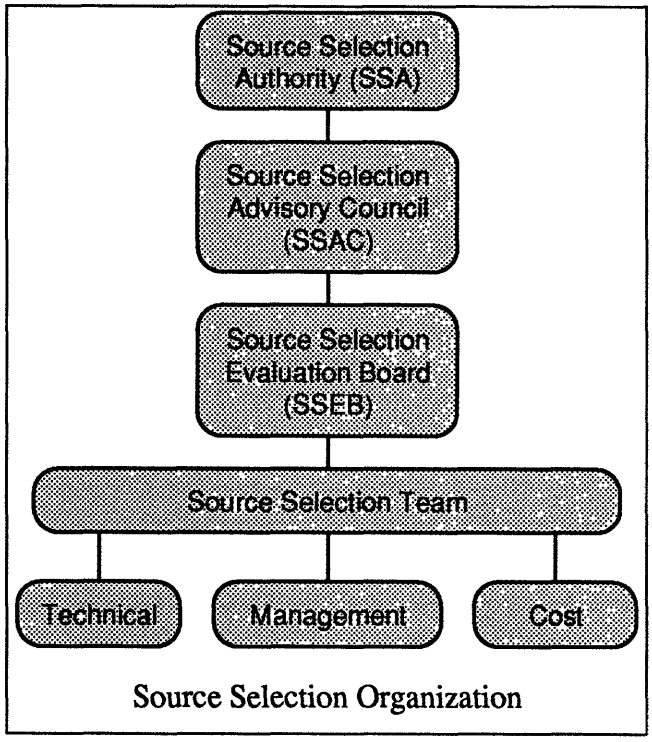
The Program Manger prepares a bidder mailing list as per NAVSEA Instruction 4200.4B, subject "Communications with Contractors and Prospective Contractors", and NAVSEA Instruction 4200.8B, subject "Planning, Procurement, and use of Contractor Support Services". When appropriate, a Preliminary Inquiry Letter (PIL) is prepared and submitted before the solicitation. A PIL is basically a survey of the market to determine the services available and gauge prospective offerors interest in the solicitation.

The actual solicitation, a Request for Proposal (RFP), an Invitation for Bids (IFB) or an Invitation to Quote Costs (IQC), is advertised in the Commerce Business Daily (CBD). IFB and IQC are evaluated based on price and other factors such as responsibility and responsiveness. The contractor awarded a IQC is guaranteed a fixed number of hours, but the contract is funded if and when the Navy requires the solicited services.

Shortly after the solicitation is issued, the SHAPM coordinates and conducts a Pre-proposal or Bidder's Conference to answer the questions of any potential bidders. Any questions are answered orally during the conference, but they must also be answered in the form of a written reply after the conference.

8.6.4 Evaluations of Request for Proposal (RFP)

All proposals received in response to a RFP are evaluated by the Source Selection Evaluation Board (SSEB). As the name applies, the Source Selection Authority is responsible for the ultimate selection of the winning contractor(s) and for the proper and efficient conduct of the source selection process. Unless otherwise specified, the Source Selection Authority (SSA) for all major defense systems is the SECNAV. This authority may be delegated at the SECNAV's discretion.



Source Selection Organization

Development and production procurements are subject to the same source selection procedures as major defense systems. In these procurements, the system commander acts as the SSA unless otherwise directed by higher authority.

Most programs establish a Source Selection Advisory Council (SSAC) and a Source Selection Evaluation Board (SSEB), but they are not required if the source selection is based on cost only. The SSAC and SSEB are illustrated in the diagram to the left.

The SSAC members are appointed by the SSA. The Council is composed of a chairman and other senior civilian and military personnel who are chosen to represent essential functional areas in the contract.

The SSEB members are appointed by the SSAC chairman. The primary function of the SSEB is to conduct the evaluation of proposals and prepare a summary of facts and findings of the source selection process. As advice and/or assistance is required, legal counsel and other professionals are made available.

The SSAC chairman is charged with ensuring that no concept proposers are also involved the evaluation process. Although the evaluation criteria is flexible, the chairman must ensure that the criteria can be directly and equitably applied to all proposals. The evaluation factors can be anything, but they must be disclosed in the Navy's solicitation.

When the proposal evaluation results are available, a Pre-negotiation Business clearance is prepared as per Navy Contracting Direction 1-403. Prior to official negotiations, contractors are generally given the opportunity to correct deficiencies in their proposal.

It is the responsibility of the Procurement Contracting Officer (PCO) to ensure that a proposed contractor is qualified to perform the functions of the solicitation within the constraints prescribed. If cost is not the sole determinant and the PCO determines that a Contract Award Review Panel (CARP) will better ensure the objectivity of the selection process, then the CARP is required for all competitive acquisitions over $100,000. The CARP is also used in certain competitive situations such as fixed-price type contracts or cost-type contracts. The CARP is responsible for:

- the review and approval of evaluation criteria
- establishment of weight and ranking factors
- analysis of the technical, managerial, and pricing aspects of proposals
- pre-award surveys, evaluation of proposals and assignment of numerical scores for evaluation criteria. This includes preparation of the Recommendation for Award.

The Recommendation for Award is to be concise, clear, complete, factual, self-

contained and indicates that all factors have been considered. The most important purpose of the Recommendation for Award is to help in debriefing unsuccessful offerors and/or in the support/justification of the panel's recommendation in defense against protests. The procedures, responsibilities and requirements for the selection process and establishment of the CARP is detailed in NAVSEA 4200.10, "Source Evaluation and Selection for Other Than Major Defense Systems".

The PCO is assisted in the review of the solicitation's technical aspects by a Technical Evaluation Review Panel (TERP). The TERP is staffed with in-house technical professionals, but if necessary technicians from outside NAVSEA may be used as well. In areas requiring unique expertise, advisors may be called upon for their advice. The TERP's responsibility to the PCO covers technical analysis of the proposal and appropriate evaluation rankings.

Every proposal modification and all contact with offerors must be fully documented. Offerors are requested to submit their best and final offers at the conclusion of the negotiations. Any unselected offeror is notified and debriefings conducted as appropriate.

8.6.5 Contract Award

After all the pre-contract activities have been completed and final offers received, the Source Selection Authority (SSA) reviews the Proposal Analysis report. This report is a summation of the Source Selection Evaluation Board's (SSEB) findings. The contracting officer prepares a Post-negotiation Business Clearance pending the SSA's decision. The clearance is written in accordance with Navy Contracting Directive 1-403 and any special instructions which the SSA may have.

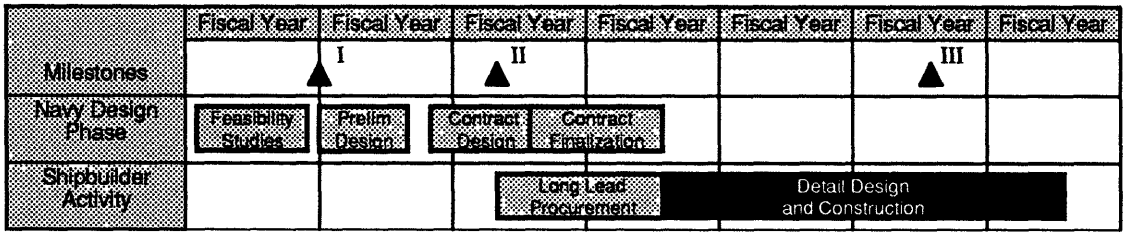
The COMNAVSEA makes his contract award presentation to the CNO only after SSA approval and ensuring all legal requirements are met. After review and briefing of all interested parties, the CNO then makes a presentation to the Secretariat for award approval. NAVSEA may make this presentation if authorized by the CNO to do so. The contract is executed by COMNAVSEA through the contracting officer. The contracting officer prepares and forwards the

proposed contract to the offeror for execution (signature) and return to NAVSEA. Upon receipt by NAVSEA, the contracting officer affixes his signature and returns a fully executed (signed) copy to the contractor.

The unsuccessful offerors' notification is prepared and forwarded in accordance with FAR 14.408. The offerors requesting debriefings within ten days (normally) will be debriefed by the contracting officer. These debriefings, conducted to one offeror at a time, include the Navy's proposal evaluation indicating deficiencies, strengths and weaknesses.

All documentation, i.e., meeting summaries, solicitations, proposals, working papers, rating, scoring sheets and check lists, is transferred to the contracting officer for contract file retention. A "Lessons Learned Report" is then submitted within 90 days of contract award to COMNAVSEA in accordance with NAVMATINST 4200.49, Subject: "Selection of Contractual Sources for Major Defense Systems".

8.7 Detail Design



The final design phase is that of the Detail Design. This phase establishes the final ship configuration, identifies components, and produces detailed working drawings and bills of material. The working drawings are not produced by any governmental organization, but they are created by either the shipbuilder, a sub-contractor to this shipbuilder, or a naval architectural firm contracted by the Navy. The transition from development to production is made at this time. The production of hardware, system deployment and the establishment of Fleet support operations is accomplished through the plans previously prepared by the program team. The review of the ship acquisition programs during construction is the responsibility of the SCIB. The SCIB normally conducts this review when the contractor finishes the major portion of the detailed design.

The SCIB reviews the status of the lead ship and any follow ship TLR changes. The recommendation for follow ship approval (Milestone III) is dependent upon the SCIB review. The JRMB requires a DCP for its review of ACAT I programs, but the NPDM requires a NDCP for its review of ACAT IIS programs.

8.8 Production and Deployment

During the Production and Deployment Phase, the Program Office's major effort is comprised of monitoring, measuring and correcting the industrial effort during the ship construction process. Much of the Program Office's time is devoted to progress measurement, ship trials, acceptance, and delivery.

It is during this Production and Deployment Phase that the plans which end the acquisition cycle are finalized. In the final stage of the acquisition program, when the ships are delivered to the Fleet, the life cycle management is turned over to the Ship Logistics Manager (SLM). The SLM assumes the logistics responsibility for the ships until their subsequent retirement at the end of their respective service lives.

8.8.1 Progress Measurement & Evaluation

It is the SHAPM's responsibility to ensure that the contractors with cost type contracts comply with DoD Instruction 7000.2, Subject: "Performance Measurement for Selected Acquisitions" when establishing an Internal Management Control System. This is done by:

- including the requirement in the Decision Coordinating Paper (DCP)
- addressing it in procurement plans
- including it in the Request for Proposal (RFP)
- making it contractual requirement during procurements

The Internal Management Control System provides valid, timely and auditable data indicating work progress, and properly relating costs, schedule and technical accomplishments. This information is used by the SHAPM to fund the project, exercise control and terminate the contract if circumstances so warrant.

In measuring progress, expenditure and technical accomplishment are the two

areas of major concern. The resources to be measured include manpower, funds, materials and services. Any technical accomplishment can usually be measured at the work activity level. When measuring technical accomplishments, it is necessary to consider both how much work has been done, and the results of the work completed.

There are two acceptable alternatives for the measuring and reporting of physical progress. These are: visual inspection work supplemented by Defense Contract Auditing Agency (DCAA) audits to verify incurred material costs; and the shipbuilder's Cost/Schedule Control System Criteria (C/SCSC).

Measuring progress is a vital function in the surveillance of contract performance. The measurement should include both the determination and the reporting of physical progress. This accurate progress measurement information provides a basis for the Navy's:

- equitable progress payment
- future planning
- measurement of progress achieved against planned progress and incurred costs
- corrective action or action in other areas which may be affected.

The essential and accurate progress measurement also provides the contractor with:

- data to measure planned progress against actual progress
- a cost measurement against actual progress
- a basis for maintaining planned cash flow

Although NAVSEA 017 establishes the weight factors used in the allocation between labor and material, it is the SUPSHIP's responsibility to devise the detailed procedures for determining the percent completion within each weight factor. The contractor's plan for completion of the effort is used by the SUPSHIP as a basis for establishing negotiated weight factors and percentages of completed progress.

8.8.2 Visual Inspection

It is no great surprise that it is unacceptable to estimate labor progress based solely on cost returns or man-hours. The normally accepted method is the combination of SUPSHIP observations and contractor's observations. Separate estimates of labor progress and material progress are used to calculate the physical progress. The composite progress is then determined by multiplying the total progress of labor and material by a conversion factor that represents the weight of each category.

8.8.3 Cost/Schedule Control System Criteria (C/SCSC)

As mentioned before, the Cost/Schedule Control System Criteria (C/SCSC) is used to measure work performance in accordance with DoD 7000.2, Subject: "Performance Measurement for Selected Acquisitions". Both firm fixed price and firm fixed-price-with economic-price-adjustment contracts are excluded from C/SCSC use.

In conjunction with the contract administration office and DCAA, the SHAPM reviews the contractors' system during various phases to ensure C/SCSC compliance. This is done in accordance with the procedures outlined in DODI 7000.2, and NAVMAT P5243, Subject: "C/SCSC Joint Surveillance Guide".

A Memorandum of Understanding (MOU) is a written agreement that specifies the conditions of the working relationship between two or more parties. The SHAPM and the contractor usually establish a MOU for the systems having met C/SCSC and been accepted by Demonstration Review. The MOU is initiated by either the SHAPM or the contractor and will describe the system in detail sufficient to permit adequate surveillance. Surveillance reviews are based on periodic evaluations of internal practices and selective tests of reporting data during the contract life.

The C/SCSC is predicated on a logical work breakdown into clearly distinguishable work packages. The packages are representative of work at levels where the work is performed. In other words, these packages represent small elements of work. Each of these elements are assigned to various work shops

along with milestones such as scheduled start and completion dates.

The SHAPM may tailor procedures and establish policies to suit his specific program as long as these procedures do not conflict with DoD and Navy directives. The procedures are to be logical, effective, explicitly defined, and carefully monitored.

8.9 Ship Acceptance

Ship acceptance is comprised of Pre-delivery trials, Post-delivery trials, Commissioning, Fitting Out, Shakedown and Post Shakedown Availability, and various other additional tests and inspections. The Integrated Test Package (ITP) is developed in accordance with the core policies, procedures and standards contained in NAVSEA 0900-LP-09502010 Subject: TSTP/SP Ship Construction Test and Trials Manual. This manual is invoked under NAVSEAINST 3960.4, Subject: Total Ship Test Program for Ship Production (TSTP/SP).

The Navy's representative at the shipyard is the Supervisor of Shipbuilding (SUPSHIP). The SUPSHIP is directly responsible to the SHAPM for ensuring that the ship is ready for delivery. This is done in part by overseeing the Dock Trial and Builders Trial, and acting as a witness to the Acceptance Trial and the Fast Cruise. The SUPSHIP participates in all the shipyard meetings and addresses all outstanding work in support of the above trials. Additional responsibilities include tracking the outstanding work and appraising OPNAV and the Type Commander of the ship's condition.

Before final acceptance, the ship undergoes numerous trials as previously mentioned. These trials include:

- Builder Trials (BT)
  - Builder's Dock Trials (BDT)
  - Builder's Sea Trials (BST)
- Acceptance Trials (AT) - private shipyard constructions
- Underway Trials (UT) - Naval shipyard constructions
- Final Contract Trials (FCT)

Naval construction is compartmentalized. After a compartment is completed, the shipbuilder must get acceptance from his Quality Assurance (QA) representative for that compartment. If the compartment meets the criteria and the QA accepts it as ready-for-delivery, the Navy QA is contacted for inspection and acceptance. The Navy QA, usually a member of the SUPSHIP office, inspects the compartment to ensure it meets contact criteria and that all the equipment is installed.

Upon the completion and acceptance of all the compartments, the shipbuilder conducts a Builder's Dock Trial (BDT) to prove the readiness to the SUPSHIP of all machinery, equipment and systems for sea trials. Any deficiencies are noted by SUPSHIP. The shipbuilder may correct the deficiencies found in the BDT's, *but he is not obligated to do so.*

Shortly after the BDT's, the shipbuilder performs Builder's Sea Trials (BST). These trials are to demonstrate that the ship is seaworthy and all machinery, equipment and systems are ready for the Acceptance Trials. Any tests that couldn't be performed with the ship at mooring are performed during BST. This would include such things as radar demonstrations. The SUPSHIP notes any deficiencies as with the BDT. At this time the shipbuilder corrects any malfunctions detected during the BDT or BST. However, he may correct only those which he is contractually obligated to correct.

After the Builder's Dock and Sea Trials are completed, the SUPSHIP contacts the Board of Inspection and Survey (INSURV) and confirms the Navy Acceptance Trials (AT) schedule. These ship trials include a material inspection conducted both in port and underway to determines the ship acceptance suitability. After completion of the Acceptance Trials, the INSURV Board documents the deficiencies and NAVSEA holds a screening conference. The Navy reviews the trial deficiencies and determines who is responsible for the corrections, assuming the deficiencies are to be corrected. If there is a conflict, NAVSEA or SUPSHIP investigates to decide who bears the responsibility for correction, the government or the shipbuilder.

After all the corrections are made, a second trial is performed to ensure that all the corrections were done satisfactorily. All major INSURV deficiencies must be corrected before the ship can be accepted. The time set aside for the corrections vary depending on the type of ship involved. Usually three to five weeks are set aside for these corrections.

The Acceptance Trial's objective is to have zero deficiencies. The SHAPM and SUPSHIP aid in achieving this objective by: addressing any issues that might hinder ship completion as these issues arise, prepare a preliminary INSURV package, conduct a pre INSURV trial and conduct an informal briefing for the INSURV board before the Acceptance Trial commences.

The Navy takes delivery of the ship from the shipbuilder only after the SUPSHIP reports that the ship is ready for acceptance in accordance with INSURV recommendation and CNO approved waivers. The ship is transferred to the Prospective Commanding Officer (PCO)/Officer-in-Charge (OIC) as soon as possible after delivery. At this point the Navy crew moves aboard and the load out commences. It is during this Post Delivery Period that the intensive crew training occurs and culminates in the Light-off Examination (LOE), Propulsion Examining Board (PEB) certification and Fast Cruise and Final Crew Certification.

A ship is generally commissioned within 30 days after its delivery to the Navy. The criteria for the commissioning, the Navy ceremony that officially adds the ships to the Navy fleet, is set forth in OPNAVINST 4700.86, Subject: "Trials, Acceptance, Commissioning, Fitting Out, Shakedown ad Post Shakedown Availability of U.S. Naval Ships undergoing Construction/Conversion/Modernization".

After a shakedown period at sea, but prior to the end of the guarantee period, the INSURV Board conducts a Final Contract Trial (FCT). This generally takes about six months. During the FCT, operational tests of all equipment are performed to ensure that the ship is ready for reliable at-sea operations. Any deficiencies in this test are corrected by the shipbuilder on a continuing basis. The remaining deficiencies are corrected in the Post Shakedown Availability (PSA) prior to the SCN work limiting date (WLD).

If the ship had been constructed in a Naval shipyard or converted/modernized in a Naval or private shipyard, the Acceptance Trial (AT) would have been replaced by Underway Trials. These trials serve the same purpose as the AT.

If new equipment and systems become required subsequent to the award of the contract and start of construction, one can almost guarantee that they cannot be procured and installed without severe impacts on cost and schedule. When the new systems and equipment cannot be installed within the contract schedule, it is the SHAPM's

responsibility to inform OPNAV, the Type Commander and the INSURV board. The SHAPM must make and provide plans for the earliest installation of these improved capabilities.

After the ship is delivered, more trials are required to document the ship performance. These test include:

- Standardization Trials
- Handling characteristics vs. predicted values
- Operational Test and Evaluation Trials
- Combat Systems Certification Trials (CSCT)
- Ship Qualification Trials (SQT)
- Weapon System Accuracy Trials (WSAT)
- Acoustic Trials
- Target Strength Trials
- Structural Firing Trials

The Fleet Commander will assign a shakedown period subsequent to delivery and fitting out of the ship. This period, extending from the Readiness for Sea (RFS) to commencement of the Post Shake Availability (PSA), is used for special trials and tests not previously conducted. These test might include equipment calibration, alignment of weapon systems, degaussing, deperming, organizing and training the crew to combat readiness, and Final Contract Trials/Guarantee Material Inspection (FCT/GMI). Normally the FCT/GMI, a formal ship material condition evaluation, is conducted just before the end of the guarantee period. Any deficiencies found during FCT/GMI must be corrected before the Post Shakedown Availability (PSA) is complete.

The Post Shakedown Availability (PSA) is to be completed before the SCN work limiting date (WLD) expires. Normally the SCN WLD expires 11 months after the Fitting-Out Availability (FOA) is completed, but this period can be extended in unusual circumstances. A comprehensive guide for the PSA is formed of the CTs, GMI, and FCT results as well as any post-delivery discrepancies from the shakedown period. To support the ordering of long lead time material, the PSA package has to be defined early.

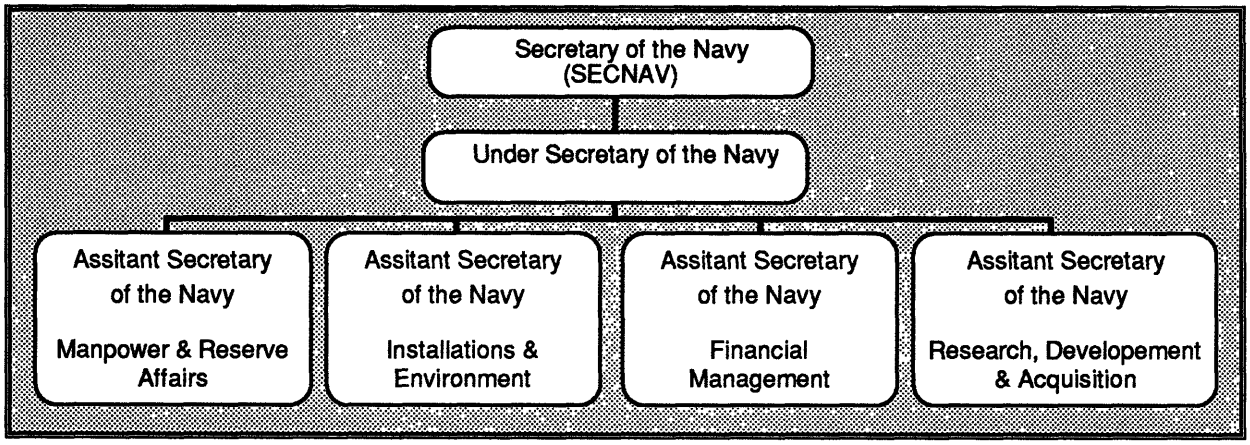
If any deficiencies subject to contractor responsibility are found within the

specified guarantee period, the SHAPM notifies the contractor through SUPSHIP. The guarantee period is subject to extension commensurate with the period of time that the ship is unavailable for operations. If the Navy chooses not to let the contractor correct the deficiencies, then the SUPSHIP is directed to negotiate a decrease in the contract price and issue a modification (field change) accordingly. The contractor's obligations under the respective contracts are based upon the Final Contract Trial performed by INSURV. The PCO/CO is also responsible for notifying the SUPSHIP of any additional deficiencies so that an appropriate corrective action may be taken.

Upon completion of the PSA and attainment of the work limiting date, the SHAPM relinquishes his responsibility for the ship to the SLM. This responsibility includes the planned support of the ship at all levels throughout is life cycle.

9 The Current Organizational Structure

I shall now attempt to describe the current organizational structure, but it should be kept in mind that even this structure may change shortly. However, it appears, in my opinion, that the final structure will be the same or very similar to what is described here.

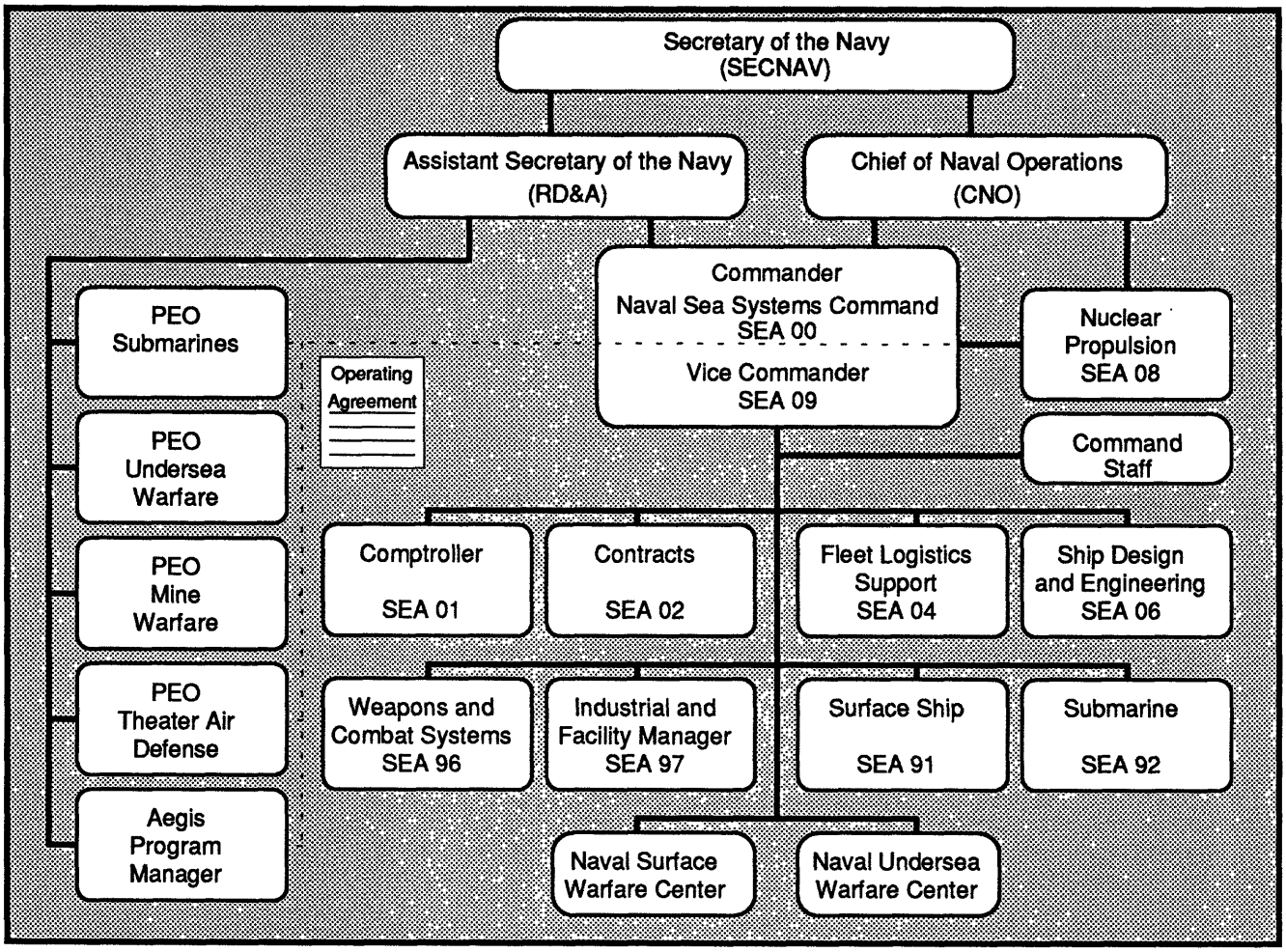


9.1 Assistant Secretary of the Navy (RD&A)

As seen in the diagram above, the Assistant Secretary of the Navy (RD&A) replaces the former Assistant Secretary of the Navy, Shipbuilding and Logistics (ASN(S&L)). The ASN(S&L) was authorized and directed that in all matters pertaining to his area of responsibility, he was to act for the Secretary throughout the Department of the Navy. This included the review and evaluation of appropriate actions regarding shipbuilding program development and execution. His responsibilities also encompassed the formulation of recommendations on policies, orders, or directives under his cognizance for SECNAV promulgation. The RD&A assumes this role with these responsibilities.

Additionally, like the former ASN(S&L), the RD&A is designated the acquisition executive for all shipbuilding to include design and weapons systems integration. It is the RD&A's responsibility to ensure the accomplishment of all phases in the acquisition of naval ships in the Five Year Shipbuilding Program as well as business strategy, contracting and acquisition policy and logistics support of all Department of the Navy (DON) acquisition programs. The RD&A acts as the liaison between the Navy and other

Assistant Secretaries in matters of mutual concern such as general oversight, policy and procedure formulation and coordination regarding environmental matters. The RD&A has PEOs to cover submarines, undersea warfare, mine warfare, ship defense, and aegis system.



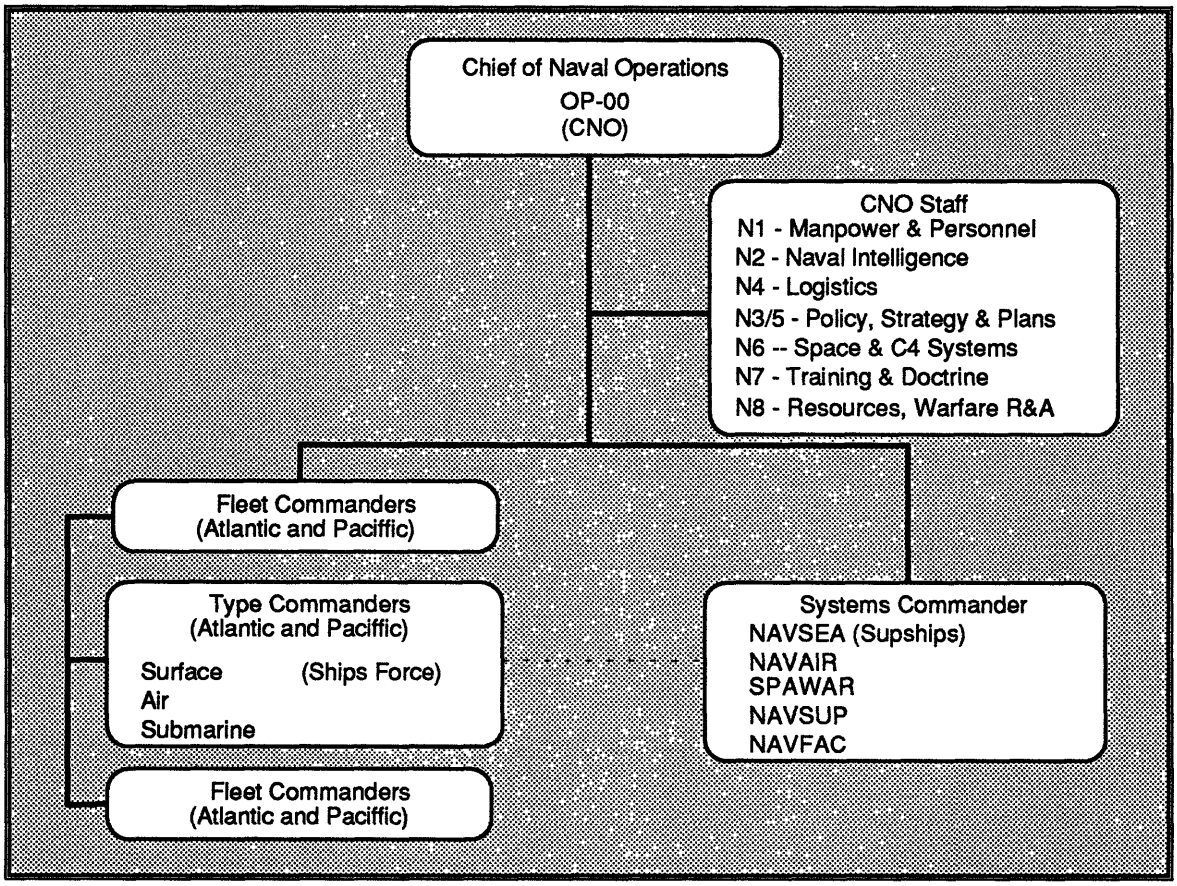
9.2 Naval Sea Systems Command (NAVSEASYSCOM)

The Commander, Naval Sea Systems Command (COMNAVSEASYS or COMNAVSEA) is the Head of a Contracting Activity (HCA) with delegated authority in the FAR to enter into and administer contracts for materials and services for which he is responsible. COMNAVSEA, in turn, has delegated authority to the Deputy Commander for Contracts and other specified individuals by name within the Deputy Commander's

office. Only COMNAVSEA and the individuals duly authorized and acting within the limits of their delegated authority can commit the Government to any contractual action.

9.3 Chief of Naval Operations (CNO)

The Chief of Naval Operations (CNO) still commands the operating forces of several fleets, seagoing forces, and other forces and related shore activities, and is still responsible to the Secretary of the Navy (SECNAV) for their readiness, use, and logistics support in both peace and war. However, the detailed strategic plans to carry out the Navy's missions, as assigned by the Secretary of Defense, generate broad logistics requirements. These requirements are turned over to the several Systems Commands (SYSCOMs) and offices for further implementation and procurement action via the Naval Sea Systems Command. The SYSCOMs, i.e., NAVSEA, NAVAIR, SPAWAR, NAVSUP, and NAVFAC, were detailed earlier.



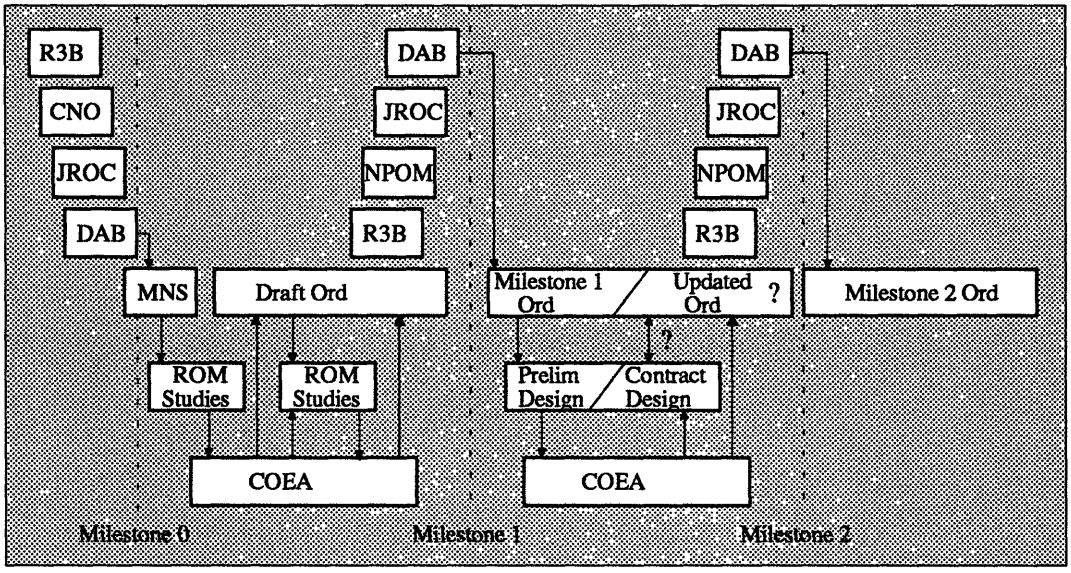
10 The Current Acquisition Process

A Cost and Operational Effectiveness Analysis (COEA) has been added to the acquisition process to assess the costs and benefits of alternatives to the current program. These alternatives include modifications to the present course. The COEA also provides a sensitivity analysis from changes to assumptions, variables, or constraints.

The policy of the COEA is formed by an Executive Board headed by the Assistant Secretary of the Navy, Research, Development, & Acquisition (ASN(RD&A)). The members of this board are from PDASN(RDA), OPN81, N091B, SYSCOM, and CNA.

Each program is guided by its own Oversight Board composed of representatives from DASN(RDA), OP N81, Sponsor, OP 91, OP 092, PEO/DRPM, PM, and SYSCOM. The Oversight Board approves each study plan and assigns a director to it. Conducting periodic reviews and a final product review, the board assures that the assumptions are valid and the conclusions are reasonable.

It's important to note that although the COEA conducts effectiveness studies, it is not a decision forum.



11 Where the Structure is Heading

Where the structure is heading remains to be seen, but the changes seem to be following the guidance of the President's Blue Ribbon Commission on Defense Management. This commission, better known as the Packard Commission, reported that

> "lasting progress in the performance of the acquisition system demands dramatic improvements in our management of acquisition personnel at all levels within the Department of Defense."[22]

The acquisition managers that they had in mind were the political appointees at the top of the acquisition process, the managers of major weapon-system programs, the military officers who serve in the acquisition community, and the civilian specialists who serve in the acquisition world.

What problems lie with these political appointees? Hamilton warned in the Federalist Papers that

> "A government ill executed, whatever might be the theory, is in practice poor government."

Whether or not policies achieve their goals is determined by the public administrator's day-to-day operational abilities. As former Federal Reserve Chairman Paul Volcker observed,

> "the idea that the public would accept mediocrity in public service is, in time, a invitation to mediocrity as a nation."[23]

A National Academy of Public Administration survey of 536 presidential appointees found an increasingly rapid turnover in top jobs, longer delays in Senate confirmations, a widening gap between salaries of top government executives and their private-sector counterparts, longer work hours, and an increasing number of appointees who said their government jobs had caused stress in their personal and family lives.[24] The NAPA report also noted that the average length of service for presidential appointees is

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[22] Packard Commission, "A Formula for Action," page 27

[23] J. Havemann, "Volcker Sees Crisis For Public Service," *Washington Post*, 4 December 1987

[24] J. Dickenson, *Appointee Aggravations*, "*Washington Post*, 10 December 1985

"just a shade over two years" and one third stay for 18 months or less. Furthermore, the 1985 Senate Arms Services Committee staff report of Defense Organizations recognized that

> "in many instances the defense management credentials of senior OSD officials seem to have been given low priority in their selection by the Executive Branch. In many cases, political debts (often to members of Congress) were apparently the pivotal consideration. . . ."

To make matters worse, these appointees receive practically no training. Therefore, the ideal candidates would be people who have experience in both industry and in government management. However, many of these candidates are barred by conflict-of-interest laws. A further problem is that although freedom of leadership provides for greater efficiency in industry, the American population would prefer inefficiency over the loss of the checks and balances.[25]

The National Association of Public Administration's 1987 report entitled "Leadership in Jeopardy: The Fraying of the Presidential Appointments System,"[26] listed 23 specific recommendations for improving the recruitment of senior-level executive-branch personnel. Seven of these are shown below:

1. simplify the financial-disclosure requirements
2. establish a procedure for periodic salary adjustments
3. set up thorough briefing and orientation procedures
4. limit the period that any senator can delay a nomination to five working days
5. ban any solicitation or discussion of future private employment by an presidential appointee, but providing three months' severance pay
6. allow presidential appointees to defer capital-gains taxes incurred when they sell assets to comply with conflict-of-interest provisions
7. an annual 10 percent bonus for appointees who remain for more than three years

The Packard Commission recognized that a greater centralization of acquisition

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[25] "A Conversation with Joseph Bower: Run the Federal Government Like a Business? Forget It," *U.S. News and World Report*, 23 April 1984, page 77

[26] National Association of Public Administration, "Leadership in Jeopardy: The Fraying of the Presidential Appointment System" (Final Report of the Presidential Appointee Project), November 1985

decision-making was needed, and suggested the creation of a new position. This position is to be the Under Secretary for Acquisition and act as the number-three position in the Department of Defense. Whether this is to be seen in the new organizational structure is unknown, but an effort to centralize the acquisition decision making is sure to be made.

The Packard Commission also recommended the "day-to-day execution of the development and production of weapon systems" be decentralized, down to the level of the program manager. Although the program manager is a critical link in the acquisition process, inexperience and high turnover are common here too. The Packard Commission found that of the roughly 240 program offices within the Department of Defense, over 90 percent of the program managers are military officers.[27] Former Under Secretary of the Army J. Ronald Fox wrote,

> "that the weapons acquisition process can be managed by military officers like themselves, whose primary training and experience has been in military field operations unrelated to the complex tasks of procurement and program management that the process involves. . . . Most military chief see little need to get program managers more specialized training or development."[28]

A further problem exists in that military officers view program-management jobs as career dead-ends. An ambitious officer wants to "get back to the field" as quickly as possible because the armed services reward and promote people with "operational" experience. An 1986 GAO survey found that a program manager's average tenure, including his experience as deputy program manager, was just over 2 years.[29] This means that over the 8-12 years it takes to develop a weapon system, the system will have four or five different military program managers.

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[27] Packard Commission, "A Formula of Action," page 28

[28] J.R.Fox, "Revamping the Business of National Defense," *Harvard Business Review*, September-October 1984, page 69

[29] General Accounting Office, "DoD Acquisition: Capabilities of Key DoD personnel in Systems Acquisition," report no. GAO/NSIAD-86-45, May 1986

What will the changes be? This I don't know, but as the Packard Commission said

"Whatever other changes may be made, it is vitally important to enhance the quality of the defense acquisition work force — both by attracting qualified new personnel and by improving the training and motivation of current personnel."[30]

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[30] Packard Commission, "A Formula for Action," page 28

12 Acquisition Approaches of Other Countries

Before considering what might be done to improve upon the acquisition process of the United States, it is interesting to examine the national security approaches of other countries. Countries of comparison will be: Western European countries such as France, the Untied Kingdom, West Germany, and Sweden; and other capitalist countries like Japan and Israel. Not only do these countries have significant differences between them and the U.S. in the manner which they approach force planning, weapon selection, and defense budgeting, but they also have vastly different methods of maintaining their defense industrial base.

These countries have gained far greater efficiency and effectiveness through stable, long-term budgets. They also recognize the defense industrial base as a valued national resource for which the government has explicit responsibility as the sole source buyer.

12.1 Western European Nations

The United States and its European Allies have many similarities. These similarities range from strategy and weapon selection to manpower problems such as the declining demographics in the draft-age population.[31] Both the U.S. and the European Nations are faced with rising costs of acquiring and maintaining weapons. West Germany is supposed to require a 6% growth in their defense budget to sustain what they have.[32] The Europeans had been (and still may be) concerned about the large quantities of increasingly high quality conventional systems that the former Soviet Union could have deployed against the NATO forces. Therefore, they have followed a strategy of "technological superiority" and spent freely on research and development. Still, in the areas of weapon-system requirements, budget planning, acquisition organizations and processes, and the defense industry, the U.S. and its European allies have taken

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[31] Gerald Seib, "NATO Hopes to Curb Nuclear Peril by Using High-Tech Devices," *Wall Street Journal*, 5 June 1984

[32] M. Gordon, "ET Weapons to Beef Up NATO Forces Raise Technical and Political Doubts," *National Journal*, 19 February 1983, p. 369

dramatically different paths. Although there a significant differences between the European countries, they are similar enough that they may be grouped into a "European Model" that is easily contrasted against the "American Model."

Beware, before one should start adopting European approaches, one needs to recognize the relatively large differences between the roles played by the U.S. Congress and the European parliaments. Where the United States Congress performs a detailed, annual, line-by-line review of the DoD Budget, the European Parliaments tend to focus on a longer range fiscal plan. This long range fiscal plan is typically five years. Through this approach the defense ministries are allowed to distribute the money as they see fit, but they are limited in their overall expenditures. However, major weapon-system decisions are the exception and the parliaments have a significant role. This role is not an annual review, but a decision whether or not to commit to a defense program. Once the parliament has committed themselves, both they and the defense ministers will support the program unless extreme changes in the geopolitical or economic conditions renders the support totally unreasonable. Any budget debates in the European Parliaments are over the sixth year budget rather than the next years budget as in the U.S. If the United States were to adopt a multi-year budgeting program, it would both result in a reduction of program and budget flexibility, and require more accurate cost estimates. Europeans generally have fiscal plans that extend well beyond the five-year budget. This allows them to see the financial impact of a future production program when a new development decision is made, and results in a far greater stability in resource planning and weapons requirements. As a result, these nations are able to acquire more weapons with the available funds.

This leads to the second major difference, that of the view of the defense industry. The European nations recognize the value of a healthy, innovative, and responsive industrial base that is of value to both their national security and national economy.[33] This policy is quite a contrast to the U.S. DoD's "laissez faire" attitude towards the defense industry. Because much defense work requires small quantities of equipment or goods with high specialization, this only supplies enough work to maintain a few firms in each

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[33] E. Kurth, "Profit on Capital Employed in Government Contracting, British Style," *Public Contract Law Journal*, volume 9, number 1, June 1977, pages 55-71

segment of the defense industry. In small companies, many segments are supported only by one or two companies. Yet, recognizing that labor stability, R&D funding, lower-tier support, effective profits, and even international competitiveness must be maintained for these firms, Western European countries have government organizations responsible for the oversight, and competitiveness of its defense industry.

Although Sweden has a small defense market, they have insisted on self-sufficiency and have developed one of the best defense industries in the world. They accomplish this through long-term budget stability, time-phasing of programs, and a conscious attempt to integrate civilian and military industries. It seems absurd that if a small country like Sweden can maintain an efficient and effective defense industry even without a large share of exports, the United States cannot do the same with its huge market.

The third major difference between the U.S. and the European models is the organization and process of acquisition. The European nations use a single buying agency that is organizationally independent of the military services. Although the U.S. assigns the responsibility for the overall acquisition process to the Office of the Secretary of Defense, the execution is totally decentralized to the separate military services. The execution is comprised of requirements, selection, development, and production of weapon systems. The European nations moved towards a centralized approach in the 1960s to remove duplication of effort, improve long-range planning, and increase budget control across services and missions. It also provides more uniformity in the approach to acquisition including the government and defense industry interface. Furthermore, they believed that by giving the acquisition organization greater independence from the military services, it would develop a more professional acquisition corps.

Before one starts reorganizing the U.S. acquisition organization, the relative size of the organizations need to be studied. The following table[34] shows the relative sizes in both manpower and budget. As seen from the table, the size of a comparable U.S. defense acquisition agency would be more than ten times the size of the largest European agency.

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[34] J. Ganlser, "Affording Defense", page 304
GAO report "Weapons Acquisition - Processes of Selected Foreign Governments"
U.S. Air Force briefing: "An Assessment of European Defense Systems Acquisition", 15 September 1987

However, the acquisition activity of the U.S. Army, Navy, and Air Force each alone is already bigger than that of each European country's entire acquisition agency. The question that now has to be asked is, can the U.S. achieve the same benefits with an agency so large?

Country	France	Sweden	West Germany	United Kingdom	Predicted U.S. Agency
People	30,000	3,132	19,000	35,000	539,400
Budget	$7.0 B	$1.6 B	$5.5 B	$11.8 B	$148.2 B

A further distinction between the U.S. and European approach is testing and evaluation. Because the European nations give full commitment to a project upon parliamentary approval, the purpose of testing and evaluation is to satisfy military needs and get the system into production as early as possible. The European nations have a very thorough "team" testing program in which the government procurement organization, the military, and the contractor work closely together with full cooperation.[35] This in no way means that these nations would field an unsatisfactory system. In contrast to the European model, the United States views testing and evaluation as a decision making resource used to determine whether or not to continue with a program. This distinction makes a vast difference in attitudes and the relative cooperative nature of the development program. It also serves to make the U.S. effort less stable than its European counterpart.

Recent shifts in the European approach to national security has led to joint defense planning and weapon development. Steps taken in this direction tend to be bilateral and include joint brigades, joint military maneuvers[36], joint R&D, joint space programs, and many examples of joint development of next-generation weapon systems. Although many of the potential economic benefits have been canceled out by nationalism, these joint efforts are likely to lead to an efficient and effective distribution of industrial effort in the long run. The European need for multi-national programs is in many ways a mirror of the United States' need for multi-service programs.

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[35] B. Knickerbocker, "Study Says Pentagon Could Benefit from Allies' Example in Buying New Weapons," *Christian Science Monitor*, 2 April 1984

[36] S. Schemann, "West Germans Are Moving to Center Stage, Reluctantly," *New York Times*, 3 January 1988

One must realize that the U.S. approach has not been that bad, and that both the U.S. and its European allies have achieved their objectives. The United States emphasizes the objective of maximum performance in each individual weapon rather than overall force effectiveness. The Europeans wished to minimize cost and risk in an effort to maintain an effective defensive stance with limited resources. At the same time, they wished to establish an advanced technology capability and a stable labor force in their industrial sector. One would thus expect lower-cost, lower-performance systems coming out of Europe and this expectation is confirmed when looking at a detailed investigation of aircraft-system developments.[37] This study showed that between 1950 and 1980, the United States spent more on R&D but developed its planes two years quicker than its European counterparts. Furthermore, the multi-national European programs took a year longer than the single-nation European programs. However, the same trend exists in the United States between single-service and multi-service programs. The reason for this additional time required by multi-national or multi-service program developments is the negotiations over relative priorities, requirements, and budgets, etc.

12.2 Japan & Israel

Japan has focused it economy on its civilian sector and has tried to keep its defense expenditures under 1 percent of its gross national product since World War II. Israel, on the other hand, has had to be defense oriented and has spent over 35 percent of its GNP on national defense. Because both of these countries have strong capitalistic bias, democratic political systems, and extensive economic and military links to the United States, they have defense approaches similar to the European model but tailored to their national interest and cultures.

Because of its increasingly powerful civilian economy, Japan was spending more money on defense than any other nation except the U.S. and the Soviet Union by the end of 1988.[38] Japan intends to increase their defense expenditures to well above 1 percent of

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[37] J. Gansler and C. Henning, "European Weapons Acquisition Practices"

[38] *The Economist*, 13 February 1988, page 63

GNP.[39] They are taking a long-term perspective on their defense strategy as they have with all of their economy. A continuing emphasis is placed on engineering education[40], and a long term budget stability is reached through a five-year plan, reviewed every three years.[41] Japan stresses the same characteristics as in their civilian sector: high volume production, manufacturing oriented engineering, low cost, and high quality.[42]

The Ministry of International Trade and Industry (MITI) plays the major role in guiding Japan toward the desired industrial structure. The MITI strives for smooth transitions as technologies and products change[43], and encourages the top people from their top universities to take on the challenging role of "representing industry within the government and representing the government outside to industry."[44] In both Japan and Israel, senior MITI members go on to work in industry and serve to improve government-industry relations. Good relations are important in attempting to guide major sectors of a nation's economy. This guidance would be very difficult in United States which has established laws intended to prevent a "revolving door" between government and industry.

A very important characteristic of the Japanese model is the extremely fierce domestic competition that takes place before a Japanese industry goes international.[45] The government selects a few firms as the most likely candidates and provides the initial funding with full support from the Japanese banks. The limited competition is in no means limited in ferocity, and the companies hone their capabilities for the subsequent international competition. The competition stresses both quality and costs without profit serving as an objective. The companies strive for market share to move down the learning curves and failure to accomplish this is taken seriously, sometimes leading to suicide.[46]

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[39] H. Rowan, "U.S. Has Japan Up In Arms," *Washington Post*, 6 September 1981

[40] D. Halberstam, *The Reckoning* (William Morrow, 1986), page 276

[41] Magnan, "The Search of the End Game," page 34

[42] Halberstam, *The Reckoning*, page 716

[43] R. Reich, *The Next American Frontier*, Times Books, 1983, page 199

[44] C. Johnson, *MITI and the Japanese Miracle*, Stanford University Press, 1982

[45] W. Adams and J. Brock, *The Bigness Complex: Industry, Labor, and Government in the American Economy* (Pantheon, 1987)

[46] Magnan, "In Search of the End Game", page 81

Failing firms do not need to be "bailed out" because of the availability of alternative sources.

Japan has set itself up to be the leading international arms producer. The Japanese are already ahead of the Unties States in many areas of electronics, and have been acquiring an increasing number of U.S. patents.[47] A 1982 Japanese research center study indicated that Japan could capture 40 percent of the market for military electronics, 46 percent of the military automotive market, 25-30 percent of the aerospace market, and 60 percent of the shipbuilding market.[48]

When serving as the director general of Japan's defense agency, former prime minister Nakasone published a defense industrial policy titled "Basic Policy for Development and Production of Defense Equipment."[49] This policy listed five goals:

1. Maintain Japan's industrial base as a key factor in national security
2. Acquire equipment from Japan's domestic R&D and production efforts
3. Use civilian industries
4. Develop long-term plans for R&D and production
5. Introduce "the principle of competition" into defense production

The important lessons that the United States may learn from this are evident: the desirability of industrial responsiveness as a key element of national defense, the stress on use of domestic R&D, and the long-term perspective on resource commitments. It should be noted that these goals are obtained while maintaining continuous competition in both the commercial and defense sectors.

Most of Israel's government and commercial leaders are former military leaders. Having been largely dependent on France for its military equipment, Israel learned a hard lesson about dependency when France stopped shipment of all arms after the 1967. Vowing to maintain self-sufficiency, the Israel government established a capability to develop and produce military equipment. They have a modern tank plant and aircraft

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[47] *The Economist*, 9 May 1987, page 82

[48] G. Giorgerini, "Economy and Defense: The Japanese Dilemma," *Military Technology*, volume 7, number 2 (1983), page 34

[49] *Defense and Foreign Affairs*, July 1983, page 25

plant that produce tanks and planes of their own design. Their missiles, ships, and guns are equal to any in the world, and they are leaders in both electronic counter-measures and remotely piloted vehicles. Because Israel constitutes such a small market, there tends to only be one producer of each major equipment type and these producers maintain their price-sensitivity through international competition. The Ministry of Defense, the Ministry of Commerce, and the private sectors have close ties, and the government is clearly responsible for the health, innovativeness, and responsiveness of the defense industry.

Israel clearly demonstrates that an advanced and effective defense R&D and production industry can be maintained in a small market if the defense sector is properly scaled, planned, and managed. However, Israel is similar to the U.S. marine industry in that it has let the defense sector dominate the economy and has not integrated it with the civilian sector. As a result, Israel has not been able to achieve the economic growth made possible by their advanced technology capability, and the U.S. commercial marine industry has practically disappeared.

12.3 Recommendations Based on Foreign Practices

Examining the foreign practices and realizing that they have both advantages and disadvantages as compared to the acquisition practices of the United States, one finds five practices or characteristics that would benefit the U.S.

12.3.1 A Strong, Centralized Decision-Making Structure

The United States can achieve the benefits of the European centralized, independent acquisition agency by greatly strengthening the Office of the Secretary of Defense and the role of the Chairman of the Joint Chiefs of Staff. This would be completely consistent with the Packard Commission and the Goldwater-Nichols Defense Reorganization Act discussed earlier. The Under Secretary of Defense for Acquisition needs to be given greater authority over all acquisition, resource, program, and policy decisions. These decisions would be things such as weapons requirements, weapon-system selection, weapon-system cost, and development milestones. Furthermore, the Vice-Chairman of the Joint

Chiefs of Staff must be fully empowered to assume a major role in integrating the services' budgets and weapons requirements in an effort to ensure the realization of a "joint" military perspective.

> "These changes would allow the United States a significantly greater degree of central control and integration of strategy, resources, and policy - something the Europeans achieve with a single buying agency."[50]

Through these measures a centralized acquisition organization is not required, but the benefits of such an organization are gained. Furthermore, there should not be, and this structure does not provide for, a centralized day-to-day management. The European nations emphasize decentralized execution and place program responsibility with the program's manager. The U.S. can achieve such a delegation of responsibility via the services' acquisition organization, but only if they are willing to empower the program managers.

12.3.2 Program and Budget Stability

Long-term program stability would dramatically improve the efficiency of resource utilization. Foreign practices achieve this stability through close agreement and cooperation between the parliament and Minister of Defense on long-term budgeting and program decisions. Unfortunately if the United States is to apply this approach, Congress and the executive branch have to make a dramatic change in the way they deal with the multi-year U.S. defense program. Even a one year increase lengthening the present budgeting cycle to a two year defense budget would produce significant benefits. The earlier discussion of the various types of funding, such as SCN, indicates that Congress already has the tools necessary to increase the length of funding. However, there must be a change in attitude and culture for all of the potential benefits of this increase to be fully realized.

12.3.3 Performance Requirements Instead of Design Requirements

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[50] J. Gansler, "Affording Defense," page 308

Because a central acquisition agency has the responsibility for multiple-service efforts, they are free to look at alternative approaches to solving military mission needs and can avoid service parochialism. The United States must shift its "requirements process" philosophy such that nontraditional solutions may evolve to satisfy military mission needs. This requires a classic paradigm shift. The nontraditional approaches should receive support all the way through the prototype demonstration phase. The responsibility for this shift should be given to the Under Secretary for Acquisition, who's main concern is to be the early portion of a weapon system's evolution. This includes requirements, preliminary design, and weapon selection. Because the Office of the Under Secretary for Acquisition is independent of the military services, s/he must ensure that all approaches have been explored and the broad considerations of national policy have been taken into account. The services then take over and execute the program within an agreed "baseline" of performance, cost, and schedule.

12.3.4 Emphasis on Cost and Long-Term Affordability

Traditionally, foreign practices have placed a much greater emphasis on program cost and affordability than the United States. However, with recent and predicted budget cuts, the U.S. is forced to place a greater emphasis on program affordability. This emphasis is even more important when realizing that the quantity of weapons fielded is directly related to the individual weapon costs. A method of increasing the weighting of the weapon system costs in the design phase is to specify the number of weapons and their unit cost as a design input. This forces a greater cost-versus-performance tradeoff than normally found in U.S. acquisitions, and examines these tradeoffs early on in the preliminary design phase.

If the system is to be stable, the cost estimates must be reasonable and include any necessary margins for risk. The present acquisition process has placed the incentives such that technical questions are the primary focus and it is beneficial to underestimate the costs. Once again, the responsibility should fall on the Under Secretary of Acquisition who must provide the independent assessment of affordability that is offered by the centralized acquisition agency of foreign practices.

12.3.5 Consideration of the Industrial Base

The United States needs to provide for direct consideration to the industrial base within its defense planning and acquisition management processes. Consideration should include the timing of new weapon programs, maintenance of competitive innovativeness, assurance of domestic suppliers for critical items, and support of advanced manufacturing technology. As the sole buyer of their countries' defense equipment, foreign governments realize that they have a responsibility for the health of their defense industry. Therefore, foreign acquisition agencies view procurement policy, profit policy, cash flow, and risk as a means to maintain a healthy, responsive, and competitive industrial base. In an effort to achieve the same effects, the Department of Defense needs to give greater explicit consideration to the industrial base in both major acquisition decisions and resource allocation decisions.

13 Current Shifts in the U.S. Acquisition Practice

The recent shifts in the United States' acquisition practice have been in more of policy and attitude than in reorganization or restructuring. In 1991 mandate was given forcing all Navy organizations to adopt Total Quality Leadership (TQL), the Navy's version of Total Quality Management (TQM), if they had not already done so. Closely related to TQL is the Army Corp. of Engineer's concept of Partnering. Both of these concepts have been used in recent acquisitions with great success.

TQL has been discussed at great length in recent papers and reports and will not be described here. Partnering, on the other hand, is a concept that is still novel to the marine industry and deserves mention.

Partnering, what is it? Partnering, designed to create a positive, disputes-prevention atmosphere during contract performance, is the use of team-building activities to define common goals, improve communication, and foster a problem-solving attitude among the parties involved in a contract execution. Its primary objective is to create a transition from the traditional adversarial relationship to a more cooperative, team-based approach. The Army Corp. of Engineers states,

> "Partnering lays the foundation for better working relations on a project including better dispute resolution. By taking steps *before construction begins* to change the adversarial mindset, to recognize common interests, and to establish an atmosphere of trust and candor in communications, Partnering helps develop a cooperative management team. This team has the ability to appreciate the roles and responsibilities each will have in carrying out the project."[51]

It should be noted that partnering is not a contractual agreement and does not create any legally enforceable rights or duties.

If the agreement is not enforceable, why use partnering? The structure of a typical project promotes an adversarial attitude between the parties because there are two distinct management teams, each making independent decisions with the intent of reaching their own goals for the project. These independent decisions determine the paths that each

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[51] U.S. Army Corp. of Engineers, Water Resources Support Center, Pamphlet 4, Alternative Dispute Resolution Series, "Partnering," December 1991, page 1

party chooses to achieve its goals and are often made without regard for the other party's interest and expectations. Because communication between the parties may be limited or even non-existent, conflicts are inevitable as paths diverge and expectations are not met. An adversarial management style takes over and the project goals are forgotten in preparation for litigation. This sets the stage for nothing but conflict and litigation.

> "Clearly, the best dispute resolution is dispute prevention. Acting to prevent disputes before they occur is key to building new cooperative relationships. By taking the time at the start of a project to identify common goals, common interests, lines of communication, and a commitment to cooperative problem solving, we encourage the will to resolve disputes and achieve project goals."[52]

A feature of successful partnering is the establishment of cooperative processes for progress evaluation and problem solving. The evaluation mechanisms developed need to be specific in their achievement measurement of the objectives that will make the project a success. Furthermore, a system for resolving conflicts and solving problems should be established that will provide for expedited decisions.

There is a great concern that contract requirements may be relaxed in the interest of Partnering, but it should be stressed that Partnering in no way indicates that the public interest is to take a back seat to the interests of the parties. Partnering does not exempt either party from any of the federal procurement laws and regulations, but it indicates that the parties may cooperate to satisfy the laws and regulations.

When the Army Corp. of Engineers managed the replacement of the navigation lock at the Bonneville Dam on the Columbia River in the Portland District, they employed Partnering with great success. The value engineering savings on the $34 million project amounted to over $1.8 million. A similar project at the Bonneville Dam that did not employ Partnering had a total value engineering savings of only $750,000 although it was a $310 million contract. This demonstrates that Partnering may achieve significant savings that would otherwise be unrealized. Relative to comparable projects, this project reduced the letters and case-building paperwork by two-thirds.

In another Partnering project, both the Army Corp. of Engineers and the contractors met all of the project goals. The project was actually completed one month

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[52] LTG H.J. Hatch, Commander, U.S. Army Corps of Engineers, Policy Memorandum 11, 7 August 1990

early, 4.38% under budget, and with $72,000 value engineering savings. This savings is outstanding when realizing this was for only a $5 million project.

So, are there any examples of success by the Navy using the principles of partnering (even if they were not hailed as formal partnering projects) or TQL? To answer this question one might look at the acquisition of the new sealift ships, the WAGB 20 icebreaker, and the T-AGS 45 oceanographic survey ship.

SUPSHIP San Diego held a workshop for representatives from each organization involved with the execution of the construction contract of the new sealift ships. Members discussed their positions and responsibilities in the contraction execution. By doing this, each player should know who to contact to execute the contract in the most efficient manner. Furthermore, now that many of the key players have sat down together in a nonconfrontational environment, they might work together better to resolve any conflicts.

In 1990, the Department of Defense funded a joint Navy/Coast Guard program to acquire a new icebreaker, the WAGB 20. An RFP for a 460' vessel was issued in the spring of 1991, but the RFP was canceled a year later. This was because although the bids were technically viable, they exceeded the full funding available.

Continuing their support, the Navy and Coast Guard implemented a new acquisition strategy. They developed interlocking teams, and with help from NAVSEA, reviewed a spectrum of options. The original requirements were clarified with greater input. The analysis of historical endurance requirements was refined with reduced crewing and a review of the military requirements.

Through an interactive team effort, an effective, affordable and viable design was produced. In doing this, the crew was reduced from 134 to 60 while accommodations for scientists were increased from 30 to 35 (and a possible surge to 50). Unnecessary military requirements were eliminated and a more producible design created. The design allowed flexibility and increased yard participation for greater performance. The interaction with the yard and SUPSHIP apparently is — and will be — very similar to that of the T-AGS 45.

The detail design and construction contract of the T-AGS 45 was awarded in April 1990 and the ship was completed in time for a 1993 delivery. This is an impressive feat in

today's Navy, but it is even more impressive because the T-AGS 45 was a complex lead ship and required the integration of a large amount of sophisticated mission systems.

Constructed to replace the USNS MIZAR, T-AGOR 11, the T-AGS 45 is able to conduct a variety of environmental and experimental operations in support of the Integrated Undersea Surveillance Systems (IUSS). Designed and constructed to commercial standards, the ship complies with American Bureau of Shipping, U.S. Coast Guard, and other regulatory body requirements for unrestricted ocean service and is capable of operating in all oceans of the world and in all seasons.

Although the vessel is manned and operated by the Military Sealift Command, the mission scientists and technicians are provided by the Integrated Undersea Surveillance Program Directorate, SPAWAR PD80. Its missions include: Acoustic Source Towing for studying ocean noise propagation characteristics; a full range of bathymetric, oceanographic, and hydrographic surveys utilizing a suite of hull mounted transducers including multibeam echo sounding and sub-bottom profiling sonars; the launch, operation, and recovery of a Remotely Operated Vehicle (ROV) over the side; and the launch and recovery of other scientific equipment overboard and through the ship's center well.

Naval Sea System Command (NAVSEA) was assigned the responsibility for the USNS WATERS. The control at NAVSEA was given to Captain Jim Todd, Program Manager, Combat Support, Surveillance and Special Mission Ship Program Office (PMS383). Captain Todd empowered Art Divens, an Assistant Project Manager (APM), with full responsibility to control this specific program. Art Divens brought two other key personnel onto his team, Mike Maloney and Joe Novak. Divens had worked with these people before and had already established a good working relationship with them. Mike Maloney served as the Project Engineer and Joe Novak was the Procuring Contracting Officer (PCO).

Through Captain Todd's empowerment of Art Divens and Mr. Divens' recruitment of key personnel, a foundation for teamwork had been laid. The T-AGS 45 acquisition team did not follow Army Corp. of Engineering guidance in managing this acquisition, but after completion of construction they noticed that they had in effect developed their own form of partnering similar to that used by the Corps of Engineers. Art Divens had led the acquisition team in creating a structure that resulted in better working relationships

between all parties. The team took steps even before construction began to change the adversarial mindset, to recognize common goals, and to establish an atmosphere of trust and candor in communications.

The first evidence of any special attention this acquisition received from DoD and Congress is seen in that the T-AGS 45 was forced through the appropriations process in its first year displacing other priority programs. The Source Selection Evaluation Team was assigned on 15 April 1989 and an RFP issued on 2 October.

The proposals were due on 2 January 1990 with evaluations beginning the following day. The proposal evaluations had to be completed by 20 February 1990 and an Evaluation Report submitted on 28 February 1990. Negotiations began on 1 March and lasted through 10 March with a request of Best and Final Offers made at that time. The BAFOs were to be received and evaluations begun by 17 March 1990. The revised source selection evaluation report was submitted on 20 March and the contract awarded on 2 April 1990. As you can see, this ship had a tight deadline.

Proposals Due	2	January	1990
Evaluations Begin	3	January	1990
Evaluations Completed	20	February	1990
Evaluation Report	28	February	1990
Negotiations Begin	1	March	1990
Negotiations End	10	March	1990
Best and Final Offer Request	10	March	1990
Best and Final Offer Due	17	March	1990
Evaluations Begin	17	March	1990
Revised Source Selection Evaluation Report	20	March	1990
Contract Awarded	2	April	1990

The acquisition team placed a lot of effort in creating a good design specification. This saved time overall by producing a cleaner package with greater producibility. To aid in this effort, the team used "crew review". In this review, the Chief Engineer and Master of a similar vessel reviewed the preliminary specification, and suggested changes that enhanced the ship performance and ease of use.

Aware that a lack of bids may result from the solicitation of two other acquisition projects, the T-AGS 60 and the T-AGOS 23, the acquisition team had to ensure adequate response to its bid. Both of the T-AGS 60 and the T-AGOS 23 contracts would involve multi-ship bids with promise of future contracts. Because the T-AGS 45 was a single vessel procurement, shipyards would have potentially more to gain from the other

solicitations.

If the acquisition team was to assure an adequate response, the T-AGS 45 management had to either allow shipyards to bid after the other solicitations or force shipyards to bid on this contract first. Because the deadline for bids couldn't be pushed off because of the tight delivery schedule, the T-AGS 45 management was left with forcing their bids first. This was done with cooperation from the other two solicitations. Both the T-AGS 60 and T-AGOS 23 pushed off their deadlines such that shipyards had time to prepare bids on the T-AGS 45 first without adversely affecting their position on the other programs.

Of the three yards that bid on this contract, one of them stated that it couldn't complete it under the time constraints and another would have required a substantial investment in the yard to handle a ship of this size. What type of contract would have been preferable, low bid or best (value) bid? Although, it is generally accepted that the practice of best bid generally produces better results, the T-AGS 45 management was forced to take a risk and use a low bid solicitation due to the time constraints. They were fortunate in that the yard which submitted the lowest bid, was apparently also the most responsible. If they had used a best bid solicitation, the award would have taken longer to administer and the chance of litigation over contract award would have been much higher.

Thirty-six months were allocated between contract award and delivery. Thirty-two of these were to be design and construction time allocated to Avondale while the remaining four were to be Navy construction/modification. Avondale proceeded to have problems with some of their subcontractors and needed the four extra months. If equipment vendors could not meet delivery dates to which they had agreed, the ship delivery would have been late. One possible justification for such a delay might be that limited supplies of their products were being sent to fulfill other government contracts rather than the T-AGS 45 project. The T-AGS 45 team requested priority preference through the Department of Commerce via DOA3 ratings although it could have resulted in extra paperwork for the T-AGS 45 team (as well as the vendors involved).

The priority preference system was implemented and worked well. Once the team carried through on the DOA3 ratings the first few times, just mentioning this possibility got the desired response from the vendors. Such activities were a great help to the shipyard that now had the Navy speeding up its vendor deliveries.

Because Avondale, the recipient of the contract, had a great demand for its yard resources, aggressive management was required by both the Navy and the Yard to ensure that the T-AGS 45 received the resources it required to be completed on time. Incentives were placed in the contract to convince the yard to give priority to the T-AGS 45.

The T-AGS 45 management realized that any conflicts with the yard could result in costly delays and tried to work with the yard. This cooperative attitude was seen in the selection of a Fixed Price Incentive Contract with awards. When the yard found cheaper and faster methods, the Navy didn't demand any money back. This provided a greater incentive for the yard to develop better methods that the Navy can use in future acquisitions. The share line was a 50/50 share line, but changed to a 80/20 share line for the first 10% of any cost overrun. A further incentive was given in the use of Award Fees. Report cards are used each period to evaluate the shipyard's performance. These evaluations could place different emphasis each period to focus attention in areas that the Navy wished the yard to improve. A further incentive was given in that any money not awarded in a period was rolled over into the next period increasing the possible reward for good performance.

Many people complain of contracting officials and prefer to keep them out of the loop if possible. This is because many contracting officials act as barriers. Rather than telling the key players what they couldn't do, the contracting official for the T-AGS 45 worked with the managers to tell them how to do what they wanted. This is an important help in any acquisition. An example of this cooperation was seen in the maximizing of "Contract Guidance" drawings and corresponding minimizing of "Contract Drawings". Contract Drawings require a contract change for even the most insignificant change. To allow more flexibility and ease of change, T-AGS 45 contracts developed Contract Guidance to serve the same purpose as Contract Drawings without requiring contract changes.

The acquisition team wished to empower SUPSHIP with more authority to speed up the construction process because there are two issues that would slow down the process and they both deal with communication and Washington. The first is the added time it would have taken for any information to get to Washington and the second is the lack of communication between departments within Washington. When the SUPSHIP was contacted to see what priority could be given to the T-AGS 45, it was found that they

could not dedicate any of their personnel to the T-AGS 45 full time because of other commitments. Wishing to have a full time dedicated staff with a single point of contact to provide quick resolution of technical problems and good communication lines between the contractor and the government, the SHAPM used a Ship's Project Directive to establish an on site office. The Ship's Project Directive serves as a memorandum of understanding to clearly define roles and responsibilities between NAVSEA, SUPSHIP and the on site office.

The acquisition manager stationed a team of its own engineers and a data manager at the on site office. The on site engineers had worked on the design of the T-AGS and were familiar with its needs and requirements. Most decisions were able to be made within the yard without wasting valuable time. The acquisition managers would even travel to the yard at least one week a month. This process saved time in communication and travel. The dedicated engineers saved time in that the learning curve which would have required for each SUPSHIP review was eliminated.

Although there is an added cost in the use of on site engineers, this cost is only a fraction of a percent of the total overall cost. Furthermore, this added cost is probably more than made up for in the savings it produces.

An Action Item Request system (AIR) was used to great success through the autonomous project office stationed at the shipyard. When a question on a technical or programmatic issue arose, it was documented on an informal AIR form and transmitted via fax or personal delivery. While other acquisition programs typically include a contractual requirement for the government to respond to such issues within 45 days, the success of the AIR was amazing. Of the over 1000 AIRs written, 99% were responded to in less than 45 days. Of the 145 critical (and most difficult) issues having both government and shipyard responsibility, all were answered within 27 days. 93% were answered in 20 days or less and 47% answered in less than 5 days.

14 Conclusions

In April 1986, the President's Blue Ribbon Commission on Defense Management reported:

> "All of our analysis leads us unequivocally to the conclusion that the defense acquisition system has basic problems that must be corrected. These problems are deeply entrenched and have developed over several decades from an increasingly bureaucratic and overregulated process. As a result, all too many of our weapon systems cost too much, take too long to develop, and, by the time they are fielded, incorporate obsolete technology. . . .
>
> In general, we discovered these problems were seldom the result of fraud or dishonesty. Rather, they were symptomatic of other underlying problems that affect the entire acquisition system. Ironically, action being prescribed in law and regulation to correct [the problems] tend to exacerbate these underlying issues by making acquisition procedures even more inflexible and by removing whatever motivation exists for the exercise of individual judgment."[53]

Fortunately, the government has incorporated many of this commission's finding into DoD 5000, the official document the structural reorganization seems to be following. This reorganization will take time, because it involves both a organizational and cultural change. Hopefully, this text should help you understand what the structure and process were, and where they might be heading.

It is important to note that the most effective changes take place on a personal level. The government is to be congratulated on its adoption and use of management philosophies such as Total Quality Management and Partnering. Incorporating cultural changes such as these is a needed and effective step because every person in the acquisition process can make an improvement or change. The mind set of "this is the way it's always been and will always be" is being shattered. Even more, people realize that they have a personal responsibility. No more should people say that they are controlled by the process, rather than controlling it. Every person at every level can make changes to perform his or her function better. The cooperative mindset of TQM also allows an avenue by which anyone can make a suggestion about the overall structure and process.

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[53] "A Formula for Action, A Report to the President on Defense Acquisition," page 5

In short, the government's acquisition process is not yet perfected. However, this is recognized and steps are being taken to improve it. However, the change in any organization, especially government, has never been easy. Over 400 years ago, Niccolo Machiavilli wrote, in *The Prince*, that

> ". . . there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new. This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men, who do not readily believe in new things until they have had a long experience of them. Thus it happens that whenever those who are hostile have the opportunity to attack they do it in partisan, whilst the others defend lukewarmly. . ."

The Navy has done much to improve the acquisition process, and are to be congratulated for their successes. I wish them good fortune and look forward to continued improvements.

Appendix I: Acquisition Category Definition

The Ship Acquisition life cycle is comprised of a series of detailed procedures. These procedures cover each step from inception to the ultimate deployment and operation within the active fleet. A set of guidelines or categories was devised as the primary vehicle for achieving the controlled decentralization of RDT&E/acquisition management. These acquisition categories are known as ACATs. This ACAT system applies to all Navy RDT&E/acquisition programs except those involving nuclear warheads, nuclear propulsion systems, or direct funding from Marine Corps appropriations.

This system is divided into four branches, ACAT I through ACAT IV. Each branch requires different documentation and level of review and decision authority. ACAT I requires the highest decision-making level and documentation. Normally ship programs receive category I, II, or III status.

ACAT I

ACAT I programs are those which the Office of the Secretary of Defense (OSD) designates as "major" programs. These programs require the approval of the Secretary of Defense (SECDEF) to proceed through the various stages of the acquisition process. This category includes the programs with an anticipated RDT&E cost of at least $200M and/or procurement/production costs of at least $1B.

ACAT II

The ACAT II category has a program threshold of $100M RDT&E and/or $500M production/procurement costs. Programs in ACAT II are placed in one of two subcategories, ACAT IIS or ACAT IIC.

ACAT IIS programs are programs of special interest to SECNAV. Examples of programs so designated might be joint service or multinational programs. They have Congressional interest, a history of technical, cost and schedule problems, an

extraordinary acquisition strategy and/or risks, criticality of mission need, or unusual manpower and/or systems needs or demands.

Programs with the ACAT IIC designation are under the authority of the CNO. These programs are designated by the Director of Navy Program Planning (OP 090) based on recommendations from the Director, Office of Research, Development, Test and Evaluation (OP 098).

ACAT III

Programs which might affect the military characteristics of ships or aircraft, directly affect the Navy's combat capability, or might interact with the enemy receive the ACAT III designation. This would be systems such as radars, sonars, radios, navigation systems, electronic warfare systems, or aircraft operational flight programs. This designation has no dollar threshold. The programs within this category are designated by OP 098 and apply to hardware and software, new systems and modifications to existing systems. The authority for ACAT III programs is given to Deputy Chiefs of Naval Operations (DCNOs).

ACAT IV

Any program which doesn't meet the criteria for ACAT I, ACAT II, or ACAT III is designated ACAT IV. This designation is made by OP 098. All ACAT IV programs are placed under the authority of COMNAVSEA.

Bibliography

Packard Commission, "A Formula for Action, A Report to the President on Defense Acquisition"

Air Force Acquisition Fundamentals Study and Guidebook, 31 March 1992

Air Force systems Command statement on defense industrial base issues, 13 November 1980

U.S. Air Force briefing: "An Assessment of European Defense Systems Acquisition", 15 September 1987

U.S. Army Corp. of Engineers, Water Resources Support Center, Pamphlet 4, Alternative Dispute Resolution Series, "Partnering," December 1991

General Accounting Office, "DoD Acquisition: Capabilities of Key DoD personnel in Systems Acquisition," report no. GAO/NSIAD-86-45, May 1986

General Accounting Office report "Weapons Acquisition - Processes of Selected Foreign Governments"

Congressional Budget Office, Analysis of Defense Budget Justification Data, 1986

Defense Systems Acquisition Review Council Working Group, Final Report, 19 December 1972

Defense Science Board Task Force, report on industrial responsiveness, 21 November 1980

House Armed Services Committee, Industrial Base Panel, "The Ailing Defense Industrial Base: Unready for Crisis," *Congressional Record*, 31 December 1980

"A Conversation with Joseph Bower: Run the Federal Government Like a Business? Forget It," *U.S. News and World Report*, 23 April 1984

National Association of Public Administration, "Leadership in Jeopardy: The Fraying of the Presidential Appointment System" (Final Report of the Presidential Appointee Project), November 1985

W. Adams and J. Brock, *The Bigness Complex: Industry, Labor, and Government in the American Economy* (Pantheon, 1987)

Norman Augustine, *Augustine's Laws*, American Institute of Aeronautics and Astronautics, 1982

J. Dickenson, "*Appointee Aggravations*," *Washington Post*, 10 December 1985

J.R.Fox, "Revamping the Business of National Defense," *Harvard Business Review*, September-October 1984

J. Gansler, *Affording Defense*, MIT Press, 1991

J. Gansler, "U.S. Dependence on Foreign Military Parts: Should We Be Concerned?", *Issues in Science and Technology* 2, no. 4, 1986

J. Gansler and C. Henning, "European Weapons Acquisition Practices"

G. Giorgerini, "Economy and Defense: The Japanese Dilemma," *Military Technology*, volume 7, number 2 (1983)

M. Gordon, "ET Weapons to Beef Up NATO Forces Raise Technical and Political Doubts," *National Journal*, 19 February 1983

D. Halberstam, *The Reckoning* (William Morrow, 1986)

LTG H.J. Hatch, Commander, U.S. Army Corps of Engineers, Policy Memorandum 11, 7 August 1990

J. Havemann, "Volcker Sees Crisis For Public Service," *Washington Post*, 4 December 1987

C. Johnson, *MITI and the Japanese Miracle*, Stanford University Press, 1982

B. Knickerbocker, "Study Says Pentagon Could Benefit from Allies' Example in Buying New Weapons," *Christian Science Monitor*, 2 April 1984

E. Kurth, "Profit on Capital Employed in Government Contracting, British Style," *Public Contract Law Journal*, volume 9, number 1, June 1977

D. Lockwood, "Cost Overruns in Major Weapon Systems: Current Dimensions of Long-Standing Problems," Congressional Research Service Report 83-194F, Library of Congress, 15 October 1983

Magnan, "The Search of the End Game,"

R. Reich, *The Next American Frontier*, Times Books, 1983

D. Rice, "Defense Resource Management Study: Final Report," February 1979

H. Rowan, "U.S. Has Japan Up In Arms," *Washington Post*, 6 September 1981

S. Schemann, "West Germans Are Moving to Center Stage, Reluctantly," *New York Times*, 3 January 1988

Gerald Seib, "NATO Hopes to Curb Nuclear Peril by Using High-Tech Devices," *Wall Street Journal*, 5 June 1984